

August 22, 2011

Dear Offerors,

SUBJECT: RFQ Number **S-PK330-11-Q-5592** for Roof Repair of GSO & PAS Area at Embassy Compound.

The Embassy of the United States of America invites you to submit a quotation for Roof Repair of GSO & Pas Area at **U.S. Embassy Compound, Islamabad.**

If you are interested in submitting a quotation on this project, read the instructions in Section J & L of the attached Request for Quotation (RFQ).

If you intend to submit a quotation, you should thoroughly examine all documents contained in the contract solicitation package. The Embassy intends to conduct a site visit (see J. C, 52.236-27). **The site visit will be held at US Embassy, Diplomatic Enclave, Ramna-5, Islamabad on September 12, 2011 at 10:00 a.m.** Maximum two persons from one firm can participate in site visit. Interested offerors must provide with full name of participant/s (as written on NIC), NIC number and particulars of vehicle to be used like make, model, color and registration number **before 12.00 noon on September 09, 2011.** This information can be provided on e-mail address: ZainuddinA@state.gov or latifm@state.gov See section J (b) and (c).

Your quotation must be submitted in a sealed envelope marked "**Quotation Enclosed (SPK-330-11-Q-5592)**" to **GSO Procurement, American Embassy, Ramna-5, Islamabad on or before 1500 hrs on September 23, 2011.** No quotation will be accepted after this time. No electronic quotation shall be accepted.

Complete Part II of the Standard Form 1442, (item # 14 to 17 and 30a, b & c), and have the form signed by an authorized representative of your company, or the quotation may be considered unacceptable and may be rejected.

In order for a quotation to be considered, you must also complete and submit the following:

1. SF 1442
2. Section A and Attachment 2: Quotation Breakdown by Divisions of Specification.
3. Complete Section J, Quotation Information
4. Bar Chart illustrating sequence of work to be performed;
5. Section L Representations and Certifications

Please direct any questions regarding this solicitation **to Monica S. Ewing** by letter or by telephone **92-51-208-2286** during regular business hours.

Sincerely,

Monica S. Ewing
Contracting Officer

SOLICITATION, OFFER, AND AWARD (Construction, Alteration, or Repair)		1. SOLICITATION NO. SPK330-11-Q-5592	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED August 22, 2011	PAGE OF PAGES 1 of 88
IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.					
4. CONTRACT NO.		5. REQUISITION/PURCHASE REQUEST NO. PR1319909		6. PROJECT NO. Roof Repair of GSO & PAS Area	
7. ISSUED BY Contracting Officer U.S. Embassy Diplomatic Enclave, Ramna-5 Islamabad		CODE GSO	8. ADDRESS OFFER TO Contracting Officer U.S. Embassy Diplomatic Enclave, Ramna-5 Islamabad		
9. FOR INFORMATION CALL: ➔		A. NAME Monica S. Ewing		B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) (92) 051-208-2286	
SOLICITATION					
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder."					
10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date): TABLE OF CONTENTS					
A. Price B. Scope of Work C. Packaging and Marking D. Inspection and Acceptance E. Deliveries/Performance F. Administrative Data G. Special Requirements H. Clauses I. List of Attachments J. Quotation Information K. Evaluation Criteria L. Representations, Certifications, and other Statements of Offerors or Quoters Attachments Attachment 1. Sample Bank Letter of Guarantee Attachment 2. Breakdown of Price by Divisions of Specifications Attachment 3. Scope of Work Attachment 4. Drawings (Typical Details) Attachment 5. Typical Details – 2 Attachment 6. GSO & PAS Roof Area Attachment 7. Specification of Sections Attachment 8. APP Membranes Specification					
11. The Contractor shall begin performance within <u>10</u> calendar days and complete it within <u>60</u> calendar days after receiving <input type="checkbox"/> award, <input checked="" type="checkbox"/> notice to proceed. This performance period is <input checked="" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. (See _____.)					
12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				12B. CALENDAR DAYS 10	
13. ADDITIONAL SOLICITATION REQUIREMENTS:					
A. Sealed offers in original and <u>02</u> copy to perform the work required are due at the place specified in Item 8 by <u>1500</u> (hour) local time <u>September 23, 2011</u> (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.					
B. An offer guarantee <input type="checkbox"/> is, <input checked="" type="checkbox"/> is not required.					
C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.					
D. Offers providing less than <u>60</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.					

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)					15. TELEPHONE NO. (Include area code)				
					16. REMITTANCE ADDRESS (Include only if different than Item 14)				
CODE		FACILITY CODE							
17. The offeror agrees to perform the work at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government within ____ calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.									
AMOUNTS →									
18. The offeror agrees to furnish any required performance and payment bonds.									
19. ACKNOWLEDGMENT OF AMENDMENTS The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each									
AMENDMENT NO.									
DATE									
20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)					20B. SIGNATURE			20C. OFFER DATE September 23, 2011	
AWARD (To be completed by Government)									
21. ITEMS ACCEPTED:									
22. AMOUNT				23. ACCOUNTING AND APPROPRIATION DATA					
24. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified) →				ITEM		25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c)() <input type="checkbox"/> 41 U.S.C. 253(c)()			
26. ADMINISTERED BY Contracting Officer, U.S Embassy, Diplomatic Enclave, Ramna-5 Islamabad				CODE		27. PAYMENT WILL BE MADE BY Financial Management Officer (FMO) U.S Embassy, Diplomatic Enclave, Ramna-5 Islamabad			
CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE									
<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return ____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.					<input type="checkbox"/> 29. AWARD (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.				
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)					31A. NAME OF CONTRACTING OFFICER (Type or print) Monica S. Ewing				
30B. SIGNATURE			30C. DATE		31B. UNITED STATES OF AMERICA BY			31C. AWARD DATE	

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STANDARD FORM 1442

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SF 1442 cover sheet

- A. Price
- B. Scope of Work
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- H. Clauses
- I. List of Attachments
- J. Quotation Information
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- L. Representations, Certifications, and other Statements of Offerors or Quoters

Attachments

- Attachment 1: Sample Bank Letter of Guarantee
- Attachment 2: Breakdown of Price by Divisions of Specifications
- Attachment 3: Scope of Work
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- Attachment 5: Typical Details – 2
- Attachment 6. GSO & PAS Roof Area
- Attachment 7. Specification of Sections
- Attachment 8. APP Membranes Specification

REQUEST FOR QUOTATIONS - CONSTRUCTION

A. PRICE

The contractor shall complete all work, including furnishing all labor, material, equipment and services required under this purchase order for the following firm fixed price and within the time specified. This price shall include all labor, materials, overhead and profit.

_____ **Total Price in Pak Rupees**

B. SCOPE OF WORK

The character and scope of the work are set forth in the contract. The Contractor shall furnish and install all materials required by this contract.

In case of differences between small and large-scale drawings, the latter will govern. Where a portion of the work is drawn in detail and the remainder of the work is indicated in outline, the parts drawn in detail shall apply also to all other portions of the work.

C. PACKAGING AND MARKING

Mark materials delivered to the site as follows (If contractors need to import material for this project):

SHIPPING ADDRESS:

The US EMBASSY ISLAMABAD, PAKISTAN

Diplomatic Enclave, Ramna 5,

Islamabad, Pakistan - 44000.

Ref: SPK330-11-C- _____ (number to be allotted after award)

Attn: GSO SHIPPING

Ph: 0092-51-208-2286, Fax: 0092-51-262-3541

D. INSPECTION AND ACCEPTANCE

The COR, or his/her authorized representatives, will inspect from time to time the services being performed and the supplies furnished to determine whether work is being performed in a satisfactory manner, and that all supplies are of acceptable quality and standards.

The Contractor shall be responsible for any countermeasures or corrective action, within the scope of this contract, which may be required by the Contracting Officer as a result of such inspection.

D.1 *Substantial Completion*

(a) "*Substantial Completion*" means the stage in the progress of the work as determined and certified by the Contracting Officer in writing to the Contractor, on which the work (or a portion designated by the Government) is sufficiently complete and satisfactory. Substantial completion means that the property may be occupied or used for the purpose for which it is intended, and only minor items such as touch-up, adjustments, and minor replacements or installations remain to be completed or corrected which:

- (1) do not interfere with the intended occupancy or utilization of the work, and
- (2) can be completed or corrected within the time period required for final completion.

(b) The "date of substantial completion" means the date determined by the Contracting Officer or authorized Government representative as of which substantial completion of the work has been achieved.

Use and Possession upon Substantial Completion - The Government shall have the right to take possession of and use the work upon substantial completion. Upon notice by the Contractor that the work is substantially complete (a Request for Substantial Completion) and an inspection by the Contracting Officer or an authorized Government representative (including any required tests), the Contracting Officer shall furnish the Contractor a Certificate of Substantial Completion. The certificate will be accompanied by a Schedule of Defects listing items of work remaining to be performed, completed or corrected before final completion and acceptance. Failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use upon substantial completion shall not be deemed an acceptance of any work under the contract.

D.2 *Final Completion and Acceptance*

D.2.1 "*Final completion and acceptance*" means the stage in the progress of the work as determined by the Contracting Officer and confirmed in writing to the Contractor, at which all work required under the contract has been completed in a satisfactory manner, subject to the discovery of defects after final completion, and except for items specifically excluded in the notice of final acceptance.

D.2.2 The "*date of final completion and acceptance*" means the date determined by the Contracting Officer when final completion of the work has been achieved, as indicated by written notice to the Contractor.

D.2.3 *Final Inspection and Tests* - The Contractor shall give the Contracting Officer at least five (5) days advance written notice of the date when the work will be fully completed and ready for final inspection and tests. Final inspection and tests will be started not later than the date specified in the notice unless the Contracting Officer determines that the work is not ready for final inspection and so informs the Contractor.

D.2.4 *Final Acceptance* - If the Contracting Officer is satisfied that the work under the contract is complete (with the exception of continuing obligations), the Contracting Officer shall issue to the Contractor a notice of final acceptance and make final payment upon:

- Satisfactory completion of all required tests,
- a final inspection that all items by the Contracting Officer listed in the Schedule of Defects have been completed or corrected and that the work is finally complete (subject to the discovery of defects after final completion), and
- submittal by the Contractor of all documents and other items required upon completion of the work, including a final request for payment (Request for Final Acceptance)

E . DELIVERIES OR PERFORMANCE

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to:

- (a) commence work under this contract within **10** calendar days after the date the Contractor receives the notice to proceed,
- (b) prosecute the work diligently, and,
- (c) complete the entire work ready for use not later than **60** calendar days after **Notice to Proceed (NTP)**.

The time stated for completion shall include final cleanup of the premises and completion of punch list items.

52.211-12 LIQUIDATED DAMAGES - CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay liquidated damages to the Government in the amount of **Pak Rupees 10,000.00** for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Default clause.

CONTRACTOR'S SUBMISSION OF CONSTRUCTION SCHEDULES

(a) The time for submission of the schedules referenced in FAR 52.236-15, "Schedules for Construction Contracts", paragraph (a), is hereby modified to reflect the due date for submission as "ten (10) calendar days after receipt of an executed contract".

(b) These schedules shall include the time by which shop drawings, product data, samples and other submittals required by the contract will be submitted for approval.

(c) The Contractor shall revise such schedules (1) to account for the actual progress of the work, (2) to reflect approved adjustments in the performance schedule, and (3) as required by the Contracting Officer to achieve coordination with work by the Government and any separate contractors used by the Government. The Contractor shall submit a schedule, which sequences work so as to minimize disruption at the job site.

(d) All deliverables shall be in the English language and any system of dimensions (English or metric) shown shall be consistent with that used in the contract. No extension of time shall be allowed due to delay by the Government in approving such deliverables if the Contractor has failed to act promptly and responsively in submitting its deliverables. The contractor shall identify each deliverable as required by the contract.

(e) Acceptance of Schedule: When the Government has accepted any time schedule; it shall be binding upon the Contractor. The completion date is fixed and may be extended only by a written contract modification signed by the Contracting Officer. Acceptance or approval of any schedule or revision thereof by the Government shall not:

- (1) Extend the completion date or obligate the Government to do so,
- (2) Constitute acceptance or approval of any delay, or
- (3) Excuse the Contractor from or relieve the Contractor of its obligation to maintain the progress of the work and achieve final completion by the established completion date.

Notice Of Delay - If the Contractor receives a notice of any change in the work, or if any other conditions arise which are likely to cause or are actually causing delays which the Contractor believes may result in late completion of the project, the Contractor shall notify the Contracting Officer. The Contractor's notice shall state the effect, if any, of such change or other conditions upon the approved schedule, and shall state in what respects, if any, the relevant schedule or the completion date should be revised. The Contractor shall give such notice promptly, not more than ten (10) days after the first event giving rise to the delay or prospective delay. Only the Contracting Officer may make revisions to the approved time schedule.

Notice to Proceed

(a) After receiving and accepting any bonds or evidence of insurance, the Contracting Officer will provide the Contractor a Notice to Proceed. The Contractor must then prosecute the work, commencing and completing performance not later than the time period established in the contract.

(b) It is possible that the Contracting Officer may elect to issue the Notice to Proceed before receipt and acceptance of any bonds or evidence of insurance. Issuance of a Notice to Proceed by the Government before receipt of the required bonds or insurance certificates or policies shall not be a waiver of the requirement to furnish these documents.

Working Hours - All work shall be performed during **0800 – 1630 hrs from Monday through Saturday**. Other hours, if requested by the Contractor, may be approved by the Contracting Officer's Representative (COR). The Contractor shall give 24 hours in advance to COR who will consider any deviation from the hours identified above. Changes in work hours, initiated by the Contractor, will not be a cause for a price increase.

Preconstruction Conference

A preconstruction conference will be held 10 days after contract award at **U.S. Embassy, Diplomatic Enclave, Ramna-5, Islamabad** to discuss the schedule, submittals, notice to proceed, mobilization and other important issues that effect construction progress. See FAR 52.236-26, Preconstruction Conference.

Deliverables - The following items shall be delivered under this contract:

<u>Description</u>	<u>Quantity</u>	<u>Delivery Date</u>	<u>Deliver to</u>
Section G. Securities/Insurance	1	10 days after award	CO
Section E. Construction Schedule	1	10 days after award	COR
Section E. Preconstruction Conference	1	10 days after award	COR
Section G. Personnel Biographies 1		10 days after award	COR
Section F. Payment Request	1	last calendar day of each month	COR
Section D. Request for Substantial Completion	1	5 days before inspection	COR
Section D Request for Final Acceptance	1	5 days before inspection	COR

F ADMINISTRATIVE DATA

652.242-70 CONTRACTING OFFICER'S REPRESENTATIVE (COR) (AUG 1999)

(a) The Contracting Officer may designate in writing one or more Government employees, by name or position title, to take action for the Contracting Officer under this contract. Each designee shall be identified as a Contracting Officer's Representative (COR). Such designation(s) shall specify the scope and limitations of the authority so delegated; provided, that the designee shall not change the terms or conditions of the contract, unless the COR is a warranted Contracting Officer and this authority is delegated in the designation.

(b) The COR for this contract is **Senior Facilities Engineer**.

Payment: The Contractor's attention is directed to Section H, 52.232-5, "Payments Under Fixed-Price Construction Contracts". The following elaborates on the information contained in that clause.

Requests for payment, may be made no more frequently than monthly. Payment requests shall cover the value of labor and materials completed and in place, including a prorated portion of overhead and profit.

After receipt of the Contractor's request for payment, and on the basis of an inspection of the work, the Contracting Officer shall make a determination as to the amount, which is then due. If the Contracting Officer does not approve payment of the full amount applied for, less the retainage allowed by in 52.232-5, the Contracting Officer shall advise the Contractor as to the reasons.

Under the authority of 52.232-27(a), the 14 day period identified in FAR 52.232-27(a)(1)(i)(A) is hereby changed to 30 days.

Financial Management Officer (FMO)
Diplomatic Enclave, Ramna-5
Islamabad.

G. SPECIAL REQUIREMENTS

G.1.0 Performance/Payment Protection - The Contractor shall furnish some form of payment protection as described in 52.228-13 in the amount of 20% of the contract price. These bonds should be in the form of irrevocable letter of credit, bank guarantee or insurance guarantee from a recognized financial institution.

G.1.1 The Contractor shall provide the information required by the paragraph above within ten (10) calendar days after award. Failure to timely submit the required security may result in rescinding or termination of the contract by the Government. If the contract is terminated, the contractor will be liable for those costs as described in FAR 52.249-10, Default (Fixed-Price Construction), which is included in this purchase order.

G.1.2 The bonds or alternate performance security shall guarantee the Contractor's execution and completion of the work within the contract time. This security shall also guarantee the correction of any defects after completion, the payment of all wages and other amounts payable by the Contractor under its subcontracts or for labor and materials, and the satisfaction or removal of any liens or encumbrances placed on the work.

G.1.3 The required securities shall remain in effect in the full amount required until final acceptance of the project by the Government. Upon final acceptance, the penal sum of the performance security shall be reduced to 10% of the contract price. The security shall remain in effect for one year after the date of final completion and acceptance, and the Contractor shall pay any premium required for the entire period of coverage.

G.2.0 Insurance - The Contractor is required by FAR 52.228-5, "Insurance - Work on a Government Installation" to provide whatever insurance is legally necessary. The Contractor shall at its own expense provide and maintain during the entire performance period the following insurance amounts:

G.2.1 General Liability (includes premises/operations, collapse hazard, products, completed operations, contractual, independent contractors, broad form property damage, personal injury)

1. Bodily Injury on or off the site stated in Pak Rupees:

Per Occurrence	Pak Rs. 50,000.00
Cumulative	Pak Rs.250,000.00

2. Property Damage on or off the site in Pak Rupees:

Per Occurrence	Pak Rs. 50,000.00
Cumulative	Pak Rs.250,000.00

G.2.2 The foregoing types and amounts of insurance are the minimums required. The Contractor shall obtain any other types of insurance required by local law or that are ordinarily or customarily obtained in the location of the work. The limit of such insurance shall be as provided by law or sufficient to meet normal and customary claims.

G.2.3 The Contractor agrees that the Government shall not be responsible for personal injuries or for damages to any property of the Contractor, its officers, agents, servants, and employees, or any other person, arising from and incident to the Contractor's performance of this contract. The Contractor shall hold harmless and indemnify the Government from any and all claims arising therefrom, except in the instance of gross negligence on the part of the Government.

G.2.4 The Contractor shall obtain adequate insurance for damage to, or theft of, materials and equipment in insurance coverage for loose transit to the site or in storage on or off the site.

G.2.5 The general liability policy required of the Contractor shall name "the United States of America, acting by and through the Department of State", as an additional insured with respect to operations performed under this contract.

G.3.0 Document Descriptions

G.3.1 Supplemental Documents: The Contracting Officer shall furnish from time to time such detailed drawings and other information as is considered necessary, in the opinion of the Contracting Officer, to interpret, clarify, supplement, or correct inconsistencies, errors or omissions in the Contract documents, or to describe minor changes in the work not involving an increase in the contract price or extension of the contract time. The Contractor shall comply with the requirements of the supplemental documents, and unless prompt objection is made by the Contractor within 20 days, their issuance shall not provide for any claim for an increase in the Contract price or an extension of contract time.

G.3.1.1 Record Documents. The Contractor shall maintain at the project site:

- (1) a current marked set of Contract drawings and specifications indicating all interpretations and clarification, contract modifications, change orders, or any other departure from the contract requirements approved by the Contracting Officer; and,
- (2) a complete set of record shop drawings, product data, samples and other submittals as approved by the Contracting Officer.

G.3.1.2 "As-Built" Documents: After final completion of the work, but before final acceptance thereof, the Contractor shall provide:

- (1) a complete set of "as-built" drawings, based upon the record set of drawings, marked to show the details of construction as actually accomplished; and,
- (2) record shop drawings and other submittals, in the number and form as required by the specifications.

G.4.0 Laws and Regulations - The Contractor shall, without additional expense to the Government, be responsible for complying with all laws, codes, ordinances, and regulations applicable to the performance of the work, including those of the host country, and with the lawful orders of any governmental authority having jurisdiction. Host country authorities may not enter the construction site without the permission of the Contracting Officer. Unless

otherwise directed by the Contracting Officer, the Contractor shall comply with the more stringent of the requirements of such laws, regulations and orders and of the contract. In the event of a conflict between the contract and such laws, regulations and orders, the Contractor shall promptly advise the Contracting Officer of the conflict and of the Contractor's proposed course of action for resolution by the Contracting Officer.

G.4.1 The Contractor shall comply with all local labor laws, regulations, customs and practices pertaining to labor, safety, and similar matters, to the extent that such compliance is not inconsistent with the requirements of this contract.

G.4.2 The Contractor shall give written assurance to the Contracting Officer that all subcontractors and others performing work on or for the project have obtained all requisite licenses and permits.

G.4.3 The Contractor shall submit proper documentation and evidence satisfactory to the Contracting Officer of compliance with this clause.

G.5.0 Construction Personnel - The Contractor shall maintain discipline at the site and at all times take all reasonable precautions to prevent any unlawful, riotous, or disorderly conduct by or among those employed at the site. The contractor shall ensure the preservation of peace and protection of persons and property in the neighborhood of the project against such action. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee that the Contracting Officer deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the project is deemed by the Contracting Officer to be contrary to the Government's interests.

G.5.1 If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Contracting Officer.

G.5.2 After award, the Contractor has ten calendar days to submit to the Contracting Officer a list of workers and supervisors assigned to this project for the Government to conduct all necessary security checks. It is anticipated that security checks will take at least seven (7) days to perform. For each individual the list shall include:

- Full Name
- Place and Date of Birth
- Current Address
- Copy of National Identity Card

Failure to provide any of the above information may be considered grounds for rejection and/or resubmittal of the application. Once the Government has completed the security screening and approved the applicants a badge will be provided to the individual for access to the site. This badge may be revoked at any time due to the falsification of data, or misconduct on site.

G.5.3 The Contractor shall provide an English speaking supervisor on site at all times. This position is considered as key personnel under this purchase order.

G.6.0 Materials and Equipment - All materials and equipment incorporated into the work shall be new and for the purpose intended, unless otherwise specified. All workmanship shall be of good quality and performed in a skillful manner that will withstand inspection by the Contracting Officer.

G.7.0 Special Warranties: Provide 5 years written warranty after completion of the job for any damage, leakage during warranty period. It is responsibility of contractor to remove the water proofing system due to leakage without any extra cost and re-install new system.

G.7.1 Any special warranties that may be required under the contract shall be subject to the stipulations set forth in 52.246-21, "Warranty of Construction", as long as they are not in conflict.

G.7.2 The Contractor shall obtain and furnish to the Government all information required to make any subcontractor's, manufacturer's, or supplier's guarantee or warranty legally binding and effective. The contractor shall submit both the information and the guarantee or warranty to the Government in sufficient time to permit the Government to meet any time limit specified in the guarantee or warranty, but not later than completion and acceptance of all work under this contract.

G.8.0 Equitable Adjustments

Any circumstance for which the contract provides an equitable adjustment that causes a change within the meaning of paragraph (a) of the "Changes" clause shall be treated as a change under that clause; provided, that the Contractor gives the Contracting Officer prompt written notice (within 20 days) stating:

- (a) the date, circumstances, and applicable contract clause authorizing an equitable adjustment and
- (b) that the Contractor regards the event as a changed condition for which an equitable adjustment is allowed under the contract.

The Contractor shall provide written notice of a differing site condition within 10 calendar days of occurrence following FAR 52.236-2, Differing Site Conditions.

G.9.0 Zoning Approvals and Permits

The Government shall be responsible for:

- obtaining proper zoning or other land use control approval for the project
- obtaining the approval of the Contracting Drawings and Specifications
- paying fees due for the foregoing; and,

- for obtaining and paying for the initial building permits.

H. CLAUSES

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://acquisition.gov/far/index.html> or, <http://farsite.hill.af.mil/search.htm>

These addresses are subject to change. If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use the Dept. of State Acquisition Website at <http://www.statebuy.state.gov> to see the links to the FAR. You may also use an Internet “search engine” (e.g., Yahoo, Excite, Alta Vista, etc.) to obtain the latest location of the most current FAR.

FEDERAL ACQUISITION REGULATION (48 CFR CH. 1)

<u>Clause</u>	<u>Title and Date</u>
52.204-9	PERSONAL IDENTIFICATION VERIFICATION OF CONTRACTOR PERSONNEL (JAN 2006)
52.209-6	Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (SEP 2006)
52.213-4	Terms and Conditions-Simplified Acquisitions (Other than Commercial Items) (DEC 2009)
52.222-1	Notice to the Government of Labor Disputes (FEB 1997)
52.222-19	Child Labor – Cooperation with Authorities and Remedies (AUG 2009)
52.222-50	COMBATING TRAFFICKING IN PERSONS (FEB 2009)
52.225-10	Notice of Buy American Act/Balance of Payments Program—Construction Materials (FEB 2000)
52.225-13	Restrictions on Certain Foreign Purchases (JUN 2008)
52.225-14	Inconsistency Between English Version and Translation of Contract (AUG 1989)
52.228-4	Workers’ Compensation and War-Hazard Insurance Overseas (APR 1984)
52.228-5	Insurance - Work on a Government Installation (JAN 1997)
52.228-11	Pledges of Assets (SEP 2009)
52.228-13	Alternative Payment Protection (JUL 2000)
52.229-6	Taxes - Foreign Fixed-Price Contracts (JUN 2003)
52.232-5	Payments under Fixed-Price Construction Contracts (SEP 2002)

52.232-8	Discounts for Prompt Payment (FEB 2002)
52.232-11	Extras (APR 1984)
52.232-18	Availability of Funds (APR 1984)
52.232-24	Prohibition of Assignment of Claims (JAN 1986)
52.232-27	Prompt Payment for Construction Contracts (OCT 2008)
52.232-34	Payment by Electronic Funds Transfer – Other than Central Contractor Registration (MAY 1999)
52.233-1	Disputes (JUL 2002) Alternate I (DEC 1991)
52.233-3	Protest after Award (AUG 1996)
52.236-2	Differing Site Conditions (APR 1984)
52.236-3	Site Investigation and Conditions Affecting the Work (APR 1984)
52.236-5	Material and Workmanship (APR 1984)
52.236-6	Superintendence by the Contractor (APR 1984)
52.236-7	Permits and Responsibilities (NOV 1991)
52.236-8	Other Contracts (APR 1984)
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements (APR 1984)
52.236-10	Operations and Storage Areas (APR 1984)
52.236-11	Use and Possession Prior to Completion (APR 1984)
52.236-12	Cleaning Up (APR 1984)
52.236-14	Availability and Use of Utility Services (APR 1984)
52.236-15	Schedules for Construction Contracts (APR 1984)
52.236-21	Specifications and Drawings for Construction (FEB 1997)
52.236-26	Preconstruction Conference (FEB 1995)
52.242-14	Suspension Of Work (APR 1984)
52.243-4	Changes (JUNE 2007)
52.243-5	Changes and Changed Conditions (APR 1984)
52.244-6	Subcontracts for Commercial Items (AUG 2009)
52.245-9	Use & Charges (JUNE 2007)
52.246-12	Inspection of Construction (AUG 1996)
52.246-21	Warranty of Construction (APR 1984)
52.249-2	Termination for Convenience of the Government (Fixed-Price) (MAY 2004) Alternate I (APR 1984)
52.249-14	Excusable Delay (APR 1984)
52.249-10	Default (Fixed-Price Construction) (APR 1984)

The following clauses are set forth in full text:

DEPARTMENT OF STATE ACQUISITION REGULATION (DOSAR) CLAUSES

652.204-70 DEPARTMENT OF STATE PERSONAL IDENTIFICATION CARD ISSUANCE PROCEDURES (AUG 2007)

(a) The Contractor shall comply with the Department of State (DOS) Personal Identification Card Issuance Procedures for all employees performing under this contract who require frequent and continuing access to DOS facilities, or information systems. The Contractor shall insert this clause in all subcontracts when the subcontractor's employees will require frequent and continuing access to DOS facilities, or information systems.

(b) The DOS Personal Identification Card Issuance Procedures may be accessed at

<http://www.state.gov/m/ds/rls/rpt/c21664.htm>

(End of clause)

CONTRACTOR IDENTIFICATION (JULY 2008)

Contract performance may require contractor personnel to attend meetings with government personnel and the public, work within government offices, and/or utilize government email.

Contractor personnel must take the following actions to identify themselves as non-federal employees:

- 1) Use an email signature block that shows name, the office being supported and company affiliation (e.g. "John Smith, Office of Human Resources, ACME Corporation Support Contractor");
- 2) Clearly identify themselves and their contractor affiliation in meetings;
- 3) Identify their contractor affiliation in Departmental e-mail and phone listings whenever contractor personnel are included in those listings; and
- 4) Contractor personnel may not utilize Department of State logos or indicia on business cards.

(End of clause)

DOSAR 652.236-70 ACCIDENT PREVENTION (APR 2004)

(a) *General.* The contractor shall provide and maintain work environments and procedures which will safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to contractor operations and activities; avoid interruptions of Government operations and delays in project completion dates; and, control costs in the performance of this contract. For these purposes, the contractor shall:

- (1) Provide appropriate safety barricades, signs and signal lights;
- (2) Comply with the standards issued by any local government authority having jurisdiction over occupational health and safety issues; and,

(3) Ensure that any additional measures the contracting officer determines to be reasonably necessary for this purpose are taken.

(4) For overseas construction projects, the contracting officer shall specify in writing additional requirements regarding safety if the work involves:

(i) Scaffolding;

(ii) Work at heights above two (2) meters;

(iii) Trenching or other excavation greater than one (1) meter in depth;

(iv) Earth moving equipment;

(v) Temporary wiring, use of portable electric tools, or other recognized electrical hazards. Temporary wiring and portable electric tools require the use of a ground fault circuit interrupter (GFCI) in the affected circuits; other electrical hazards may also require the use of a GFCI;

(vi) Work in confined spaces (limited exits, potential for oxygen less than 19.5 percent or combustible atmosphere, potential for solid or liquid engulfment, or other hazards considered to be immediately dangerous to life or health such as water tanks, transformer vaults, sewers, cisterns, etc.);

(vii) Hazardous materials – a material with a physical or health hazard including but not limited to, flammable, explosive, corrosive, toxic, reactive or unstable, or any operations which creates any kind of contamination inside an occupied building such as dust from demolition activities, paints, solvents, etc.; or

(viii) Hazardous noise levels.

(b) *Records.* The contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to or theft of property, materials, supplies, or equipment. The contractor shall report this data in the manner prescribed by the contracting officer.

(c) *Subcontracts.* The contractor shall be responsible for its subcontractors' compliance with this clause.

(d) *Written program.* Before commencing work, the contractor shall:

(1) Submit a written plan to the contracting officer for implementing this clause. The plan shall include specific management or technical procedures for effectively controlling hazards associated with the project; and,

(2) Meet with the contracting officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

(e) *Notification.* The contracting officer shall notify the contractor of any non-compliance with these requirements and the corrective actions required. This notice, when delivered to the contractor or the contractor's representative on site, shall be deemed sufficient notice of the non-compliance and corrective action required. After receiving the notice, the contractor shall immediately take corrective action. If the contractor fails or refuses to promptly take corrective action, the contracting officer may issue an order suspending all or part of the work until satisfactory corrective action has been taken. The contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any suspension of work order issued under this clause.
(End of clause)

652.242-73 AUTHORIZATION AND PERFORMANCE (AUG 1999)

(a) The contractor warrants the following:

- (1) That it has obtained authorization to operate and do business in the country or countries in which this contract will be performed;
- (2) That it has obtained all necessary licenses and permits required to perform this contract; and,
- (3) That it shall comply fully with all laws, decrees, labor standards, and regulations of said country or countries during the performance of this contract.

(b) If the party actually performing the work will be a subcontractor or joint venture partner, then such subcontractor or joint venture partner agrees to the requirements of paragraph (a) of this clause.

652.243-70 NOTICES (AUG 1999)

Any notice or request relating to this contract given by either party to the other shall be in writing. Said notice or request shall be mailed or delivered by hand to the other party at the address provided in the schedule of the contract. All modifications to the contract must be made in writing by the contracting officer.

652.229-71 PERSONAL PROPERTY DISPOSITION AT POSTS ABROAD (AUG 1999)

Regulations at 22 CFR Part 136 require that U.S. Government employees and their families do not profit personally from sales or other transactions with persons who are not themselves entitled to exemption from import restrictions, duties, or taxes. Should the contractor experience importation or tax privileges in a foreign country because of its contractual relationship to the United States Government, the contractor shall observe the requirements of 22 CFR

Part 136 and all policies, rules, and procedures issued by the chief of mission in that foreign country.

I. LIST OF ATTACHMENTS

<u>ATTACHMENT NO.</u>	<u>DESCRIPTION OF ATTACHMENT</u>	<u>NO.PAGES</u>
Attachment 1	Sample Bank Letter of Guaranty	01
Attachment 2	Breakdown of Price by Divisions of Specifications	01
Attachment 3	Scope of Work	07
Attachment 4:	Drawings (Typical Details)	06
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Attachment 7.	Specification of Sections	48
Attachment 8.	APP Membranes Specification	02

ATTACHMENT # 1
SAMPLE LETTER OF BANK GUARANTY

Place []

Date []

Contracting Officer
U.S. Embassy, [Post name]
[Mailing Address]

Letter of Guaranty No. _____

SUBJECT: Performance and Guaranty

The Undersigned, acting as the duly authorized representative of the bank, declares that the bank hereby guarantees to make payment to the Contracting Officer by check made payable to the Treasurer of the United States, immediately upon notice, after receipt of a simple written request from the Contracting Officer, immediately and entirely without any need for the Contracting Officer to protest or take any legal action or obtain the prior consent of the Contractor to show any other proof, action, or decision by an other authority, up to the sum of [Amount equal to 20% of the contract price in U.S. dollars during the period ending with the date of final acceptance and 10% of the contract price during contract guaranty period], which represents the deposit required of the contractor to guarantee fulfillment of his obligations for the satisfactory, complete, and timely performance of the said contract [contract number] for [description of work] at [location of work] in strict compliance with the terms, conditions and specifications of said contract, entered into between the Government and [name of contractor] of [address of contractor] on [contract date], plus legal charges of 10% per annum on the amount called due, calculated on the sixth day following receipt of the Contracting Officer's written request until the date of payment.

The undersigned agrees and consents that said contract may be modified by Change Order or Supplemental Agreement affecting the validity of the guaranty provided, however, that the amount of this guaranty shall remain unchanged.

The undersigned agrees and consents that the Contracting Officer may make repeated partial demands on the guaranty up to the total amount of this guaranty, and the bank will promptly honor each individual demand.

This letter of guaranty shall remain in effect until 3 months after completion of the guaranty period of Contract requirement.

Depository Institution: [Name]

Address:

Location: _____

Representative(s): _____

State of Inc.: _____

Corporate Seal:

Certificate of Authority is attached evidencing authority of the signer to bind the bank to this document.

ATTACHMENT # 2

UNITED STATES DEPARTMENT OF STATE
BREAKDOWN OF PRICE BY DIVISIONS OF SPECIFICATIONS

(1)DIVISION/DESCRIPTION (2)LABOR (3)MATERIALS (4)OVERHEAD
(5)PROFIT (6)TOTAL

1. General Requirements
2. Site Work

3. Concrete
4. Masonry

5. Metals
6. Wood and Plastic

7. Thermal and Moisture
8. Doors and Windows

9. Finishes
10. Specialties

11. Equipment
12. Furnishings

13. Special Construction
14. Conveying Systems

15. Mechanical
16. Electrical

TOTAL:

[Note to Contracting Officer: identify currency]

Allowance Items:

PROPOSAL PRICE

TOTAL: *[Note to Contracting Officer: identify currency]*

Alternates (list separately do not total)

Offeror:

Date

ATTACHMENT # 3

STATEMENT OF WORK REPAIR OF ROOFING GSO and PAS AREAS

1. BACKGROUND AND PURPOSE:

- 1.1 The U.S. Embassy requires repair of roofing of the office building located on the Embassy compound diplomatic enclave, Islamabad.
- 1.2 This building is single-story structure, consisting of reinforced concrete columns, beams, reinforced concrete roof slabs and fill in bricks walls. The existing roof covering consists of bitumen sheet with loose gravel in a setting bed over concrete slabs. The building covered area is approximately 14,500 Sq.ft. and 2 ft. high parapets all around. Contractor must physically verify area during site visit.

2. GENERAL REQUIREMENTS:

- 2.1 The contractor shall be required to prepare reports, bill of materials, catalog cuts, schedules and costs. These documents shall provide the necessary interfaces, coordination, and communication between the Embassy and the contractor.

3. SCOPE OF SERVICES:

The contractor shall provide all material, equipments, labor and supervision to complete the technical requirements in this statement of work.

The work consists of the following, but is not limited to the following:

- Removal and disposal of existing roofing, flashing, and sheet metal as directed by COR.
- Patching and repairing existing slabs as per given detail below.
- New roof drains system with all accessories.
- Priming the prepared surface/slab with asphalt primer as recommended by manufacturer of HI-GRIP modified bitumen membrane.
- One ply smooth surfaced modified bitumen membrane roofing for roof repair and seal overlap joints.
- Concrete (screeding) with wire mesh for slope of 2% towards drains.
- Priming the prepared slab with asphalt primer.
- Two ply smooth surfaced modified bitumen membranes.
- Perimeter and penetration base/counter flashing and termination bar on walls/parapet.
- Installation of slip sheet and drain board as required on top of roof membrane.
- Installation of new extruded polystyrene insulation board.

- Installation of filter fabric and new concrete pavers.
- Installation of new sheet metal flashings at penetrations, curbs, and perimeters.
- Modifications to curbs and supports to accommodate new roof system.
- Application of elastomeric coating to exposed concrete curbs.
- Final clean up.
- Upon beginning work on the existing roof, Contractor shall patch and protect existing roofing as required to prevent leaks. Contractor shall have at the work site, a sufficient amount of moisture proof coverings to provide quick temporary protection to exposed decking, unfinished roof, or open roof in the event of a rapid change in the weather.
- Leak (water) damage control:
 - A. In the event of rain during roof replacement construction operations, immediately inspect interior of building for leaks.
 - B. Coordinate with COR for access to building.
 - C. Continue to inspect building on a regular basis until rain ceases.
 - D. If leaks are discovered during rains, immediately cover and protect equipment with fire retardant sheeting in the area of the leak. Immediately notify COR of leak condition.
 - E. Perform emergency repairs on roofing to stop leaks.
 - F. Take necessary precautions to protect the existing and/or new roof from damage. Repair areas of damage caused by the negligence of Contractor, at Contractor's expense. COR shall determine damage caused by Contractor negligence.
 - G. Contractor is to be aware of the potential for roof leaks on the existing roof. Contractor is to take necessary precautions to prevent damage to the existing roof. Damage to the existing roof that could result in roof leaks is to be repaired on a daily basis by Contractor.
- See following sections for detail execution and specification

Section 02072 - minor demolition and renovation work

Section 07220 - roof and deck insulation

Section 07525 - modified bitumen membrane roofing

Section 07620 - sheet metal flashing and trim

Section 07920 - sealants and caulking

Section 09830 - elastomeric coating

4. RESPONSIBILITY OF THE CONTRACTOR:

- 4.1 The project site manager shall attend all project meetings, prepare status reports on the project and submit them to the COR. Status report shall contain meeting minutes, accomplishments, arising concerns and proposed solutions, any proposed changed orders and other pertinent information required to report the progress of performance. The submittals shall be as following:
 - A. Applicator's License Certificate: Copy of the roofing material manufacturer's agreement/contract indicating date application was approved and expiration date.
 - B. Copy of the Contractor's executed insurance certificate.

- C. Material manufacturer's written approval/acceptance of specified warranty for project, fastener pattern layout, details, insulation, and all related materials based upon existing site conditions.
- D. Copy of the Contractor's executed payment and performance bonds, if required.
- E. Shop drawings of details, if proposed different from project drawings.
- F. Manufacturer's product data sheets and Material Safety Data Sheets (MSDS) on each material proposed for usage.
- G. Sample of warranty that is to be issued upon project completion.
- H. Submit list of all mechanical, electrical, rigging, sheet metal, and all other subcontractors with evidence of subcontractor's insurance coverage in compliance with contract requirements.
- I. Detailed project schedule showing work phasing and proposed daily progress schedule.
- J. Permits, notices, and approvals of governing bodies or agencies.

SHOP DRAWINGS:

- A. Original drawings, prepared by Contractor, subcontractor, supplier, or distributor, which illustrate some portion of the Work, showing fabrication, layout, setting, or erection details, prepared by a qualified detailer.
- B. Prepare shop drawings for those details that are proposed different than the project drawings. Indicate on a roof plan, the proposed location of detail presented on shop drawing.
- C. Indicate joints, types, and locations of fasteners, shapes, sizes, expansion joints, special conditions, and installation procedures for each flashing condition. Note critical dimensions, gauge, and finish of sheet metal for each flashing condition.
- D. Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including major counter flashings, trim, and fascia units, gutters, downspouts, scuppers, and expansion joint systems.

PRODUCT DATA:

- A. Submit manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data for each material proposed for use in construction of roof assembly and related flashings and components.
 - 1. Clearly mark each copy to identify pertinent materials, products, or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.
 - 4. Indicate the Specification Section and sub-paragraph that applies to each submittal.

SAMPLES:

- A. Physical examples to illustrate materials, equipment, and workmanship; and to establish standards by which completed Work is judged, if requested.
- 4.2 The contractor shall prepare and maintain a Quality Control Schedule to address the cost and schedule of the project. The QCS is intended to document the entire project from beginning to end.

- 4.3 The contractor is responsible for safety and shall comply with all local labor laws, regulations, customs and practices pertaining to labor, safety and similar matters. Contractor shall submit a safety plan and follow the safety directive/instructions issued by the SHEM officer at Post. The contractor shall promptly report all accidents resulting in lost time, disabling, or fatal injuries to the COR.
- 4.4 The contractor shall examine all the documents. The contractor is responsible for knowing all the conditions and limitations applied to the work and shall verify exact measurements. No addition shall be paid after contract signs.
- 4.5 The contractor shall at all times keep the work area free from accumulation of waste materials.
- 4.6 The contractor shall be responsible for connection of temporary utilities to existing utilities including water, power, and telephone lines.
- 4.7 At the end of each work day, or notification of a temporary stop order, the contractor shall temporarily seal the roof to prevent water intrusion and notify the COR of the temporary seal locations. The contractor beginning the next workday, remove the temporary seal before continuing the project.

5. CRITERIA:

The contractor shall perform the job in accordance with U.S. Codes and standards and local host country codes.

- National roofing and contractors association, roofing and waterproofing manual
- American society for testing & materials, roofing, waterproofing & sealer materials
- IBC 2006.

6. DELIVERABLES, SCHEDULE AND PERIOD OF PERFORMANCE:

- 6.1 Schedule approved by COR prior to development.
- 6.2 The construction start date is to be made as soon as possible.
- 6.3 The contractor shall commence work under this contract promptly, execute the work diligently, and achieve final completion and acceptance of the roof project including final cleanup of the premises within the contract period of 60 days.
- 6.4 Project Completion: Furnish surplus materials, one copy of maintenance and operating information, and catalog cuts of all items installed.

7. REMOVALS:

- Remove dirt, debris, old roofing system from the roof. Contractor shall remove debris from roof and the compound on daily basis.

8. MATERIAL:

- Cement sand mix with SBR mortar mix and sika grouting material.
- Concrete with the ratio of 1:2:4 (screeding) and wire mesh for roof slope.

- Base ply and top ply app modified bitumen membrane 4mm thick as manufactured by HY-GRIP or approved equal.
- Asphalt primer ASTM D 41.
- Plastic Cement: Electrometric plastic roof cement acceptable to membrane manufacturer for sealing of top of base flashings and other penetrations.
- Coping stainless steel (non magnetic) all around the roof and parapet.
- See following sections for detail execution, specification and material.

Section 02072 - minor demolition and renovation work

Section 07220 - roof and deck insulation

Section 07525 - modified bitumen membrane roofing

Section 07620 - sheet metal flashing and trim

Section 07920 - sealants and caulking

Section 09830 - elastomeric coating

9. EXECUTION:

- See following sections for detail execution and specification.

Section 02072 - minor demolition and renovation work

Section 07220 - roof and deck insulation

Section 07525 - modified bitumen membrane roofing

Section 07620 - sheet metal flashing and trim

Section 07920 - sealants and caulking

Section 09830 - elastomeric coating

- Apply asphalt primer to entire slabs surface that needs to be repaired at 0.4 liters/square meter and allow drying.
- Lay the smooth surfaced APP modified bitumen membranes 4mm thick as manufactured recommendations.
- Concrete (screeding) for proper slope for drainage. Water must not stay on the surfaces that are repaired.
- Apply asphalt primer to entire slabs surface at 0.4 liters/square meter and allow drying.
- Laying of two APP modified bitumen membranes 4mm thick as manufactured recommendations.

Note: on flat roofs it is more important to keep membrane fabrication progressing uniformly across the roof, than to worry about shingling in wrong direction.

- Torch-apply by heating membrane in accordance with manufacturer's recommendation to achieve continuous edge flow and complete bond.
- Overlap sides as recommended by manufacturer.
- Where roof accessories are set on modified bituminous sheet roofing, set metal flanges on a secondary sheet of membrane and seal with bead of roofing and sealant.
- Install polyethylene Slip sheet.
- 1 ½" thick extruded polystyrene insulation sheet with grooves. Install w/grooved on bottom surface of insulation.
- Install filter fabric protection sheet.
- Install 2'x2'x1" thick tongue and groove concrete pavers and protection board.
- Flash all penetrations and equipment support as per manufacturer's recommendations.
- Fire extinguishers shall be kept on site at all times during torch applied membrane installations.
- All the work stages to be executed should be checked and approved by the COR. Contractor shall not start the next stage until the current stage be checked and approved.

10. MISCELLANEOUS ROOF WORK:

- Fasteners for securing sheet metal items and termination bar to concrete substrate shall be a pre-assembled drive anchor with a stainless steel drive screw, a lead/zinc alloy expansion anchor body 6mm Ø, 38mm length and a stainless steel washer with integral rubber seal 28mm diameter such as "zamac hammer-screw" as manufactured by powers rawl or approved equal.

11. CLEANING:

- Oversee cleaning and ensure that building and grounds are maintained free from accumulations of waste materials and rubbish.
- Sprinkle dusty debris with very fine water mist to control accumulation of dust. Do not use water in quantity so as to puddle.
- At not less than every day during progress of work, clean up work areas and access areas and dispose of waste materials, rubbish, and debris.
- At Contractor's option, on-site dump containers may be used for collection of waste materials, rubbish, and debris. Locate containers a minimum of 10 m away from building entrances at a location acceptable to COR. If used, remove containers when filled.
- Do not allow waste materials, rubbish, and debris to accumulate and become an unsightly or dangerous condition.
- Remove waste materials, rubbish, and debris from site and legally dispose of at public or private dumping areas off the Embassy property.
- Keep streets and access to site free of rubbish and debris.
- Lower waste materials in a controlled manner with as few handlings as possible.
- Do not drop or throw materials from heights.
- Upon completion of work, clean window glass and other spattered surfaces.

- Remove spattered sealer by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

12. ROOF AREA:

- The building covered area is approximately 14,500 sq.ft. and parapet height is 2'ft.

13. WARRANTY:

- **Provide 10 years written warranty** after completion of the job for any damage, leakage during warranty period. It is responsibility of contractor to remove the water proofing system due to leakage without any extra cost and re-install new system.

An amount of **Pak Rupees 10,000.00** per day shall be charged in case of failure to complete the project in time as specified in the scope of work.

14. DRAWING:

- Attachment-4 Drawings (Typical Details).

END OF SCOPE OF WORK

ATTACHMENT # 4

Drawings (Typical Detail) attached in Zip folder

ATTACHMENT # 5

Typical Detail – 2 (Attached in Zip folder)

ATTACHMENT # 6

GSO & PAS Roof Area (Attached in Zip folder)

ATTACHMENT # 7

Specification of Sections

SPECIFICATION

SECTION 02072 - MINOR DEMOLITION AND RENOVATION WORK

PART ONE – GENERAL

1.01 SECTION INCLUDES:

- A. Removal of existing roofing, flashing, and sheet metal.
- B. Required minor deck repair or replacement for roof repair work.
- C. Modification and/or removal of existing roof penetrations, equipment supports or curbs, pitch pans, reglets, piping, and electrical service to provide proper flashing height and flashing detail.
- D. Install new nailers and curbs at designated locations.
- E. All other miscellaneous and incidental work required to install complete roofing system as specified and to obtain specified manufacturer's warranty.

1.02 RELATED SECTIONS:

- A. 07220 - Roof and Deck Insulation.
- B. 07525 - Modified Bitumen Membrane Roofing.
- C. 07620 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM).
- B. Corps of Engineers (CRD).

1.04 PROJECT CONDITIONS:

A. Environmental Requirements:

- 1. Do not remove existing roofing and flashing in inclement weather or when rain is predicted with 30 percent possibility.
- 2. When ambient temperature is below 15 degrees Celsius, expose only enough cement and adhesive required within four hour period.
- 3. Do not expose membrane and accessories to constant temperature in excess of 82 degrees Celsius.
- B. Emergency Equipment: Maintain on-site materials necessary to apply emergency temporary seal in event of sudden storms or inclement weather.

- C. Smoking is prohibited on roof areas, in existing building, and all of Embassy property.

1.05 SEQUENCING AND SCHEDULING:

- A. Sequence minor demolition and renovation with sequence of new work to maintain facility in dry, watertight condition.
- B. Coordinate roof work so that no more existing items are removed in one day than can be replaced with new roofing work in same day.
- C. Coordinate work with Embassy operational requirements.
- D. Coordinate demolition work and removal with roofing work to maintain facility in dry, watertight condition.

1.06 WARRANTY:

- A. Provide Contractor's warranty covering defects in installed materials and workmanship for period of ten years from date of final acceptance.

PART TWO - PRODUCTS

2.01 MATERIALS:

- A. Wood Treatment for Lumber: Pressure preservative treated in accordance with AWPA C2, C9 standards, Above-ground Contact using Alkaline Copper Quat-Type C (ACQ-C) or Copper Azole-Type A (CBA-A) at 0.04 kN/m³ (0.25 pcf) for (ACQ-C) or 0.03 kN/m³ (0.20 pcf) for (CBA-A) wood. Preservatives shall be compatible with roof membrane.
- B. Lumber for Members, Nailers, and Blocking:
 - 1. Standard Grade Fir or No. 2 Southern Yellow Pine bearing UL label. Size shall be appropriate for application, minimum 50 mm (nominal) thickness.
 - 2. Complying with American Lumber Standards of manufacturer's association under whose rules lumber is produced.
 - 3. Marked with mill identification.
 - 4. Moisture Content: 19 percent maximum at time of installation.
- C. Plywood: Minimum 18 mm APA rated sheathing, EXP 1 or "CDX", fire rated, bearing APA trademark.

D. Fasteners:

1. Wood Substrate:

- a. Securement of metal flanged items such as flashing pans, metal edge/fascia, cleats, etc., shall be nails, No. 11 gauge, double hotdipped galvanized, ASTM A153, steel wire with 9 mm diameter head and 38 mm long ring shank such as "R-103-A Stormguard Asphalt and Fiberglass Shingle Nail" by Maze Nails (800/435-5949).
- b. Securement of wood to wood shall be nails, No. 11 gauge, double hot-dipped galvanized steel wire nail with ring shank and 7 mm diameter head such as "Stormguard PTL Anchor-Down Nail" by Maze Nails (800/435-5949); 10d or length required to provide 25 mm penetration minimum into substrate.
- c. Securement of exposed items to wood substrate shall be No. 14 stainless steel screw with stainless steel washer and intergral rubber seal; length required to provide 25 mm penetration minimum into substrate.
- d. Fasteners for securing roofing materials to wood substrate shall be a hardened steel nail with a 25 mm diameter round head and ring shank; length to provide 25 mm penetration into substrate, as manufactured by Simplex Nail Co.
- e. Fasteners for securing steel to wood substrate shall be No. 14 stainless steel wood screw with stainless steel washer and integral rubber seal.
- f. Fasteners for securing wood nailer to wood nailer in vertical position shall be 20 gauge galvanized steel plate, 50 mm by 100 mm long such as "MP 24 Mending Plate" by Simpson Strong-Tie Co., Inc. and "A34 Framing Anchor" by Simpson Strong-Tie Co., Inc. for corner connections.

2. Concrete Substrate:

- a. Fasteners for securing sheet metal items to concrete substrate shall be a pre-assembled drive anchor with a stainless steel drive screw, a lead/zinc alloy expansion anchor body (6 mm diameter, 38 mm length) and a stainless steel washer with integral rubber seal (28 mm diameter) such as "Zamac Hammer-Screw" as manufactured by Powers.
- b. Fasteners for securing wood blocking to concrete substrate shall be sleeved stud expansion bolt, 13 mm diameter (minimum), with 18 mm diameter steel washer such as "Kwik Bolt II" by Hilti.

3. Masonry Substrate:

- a. Fasteners for securing wood to solid masonry shall be galvanized steel expansion anchor, 9 mm diameter (minimum), with 18 mm diameter steel washer such as "Countersunk Kwik Bolt II" by Hilti.

b. Fasteners for securing wood to hollow base masonry shall be 9 mm diameter (minimum), threaded rod, with 18 mm diameter washer, nut, and screen tube such as "HIT C-20 Adhesive Anchor" by Hilti.

c. Fasteners for securing sheet metal items to concrete substrate shall be a pre-assembled drive anchor with a stainless steel drive screw, a lead/zinc alloy expansion anchor body (6 mm diameter, 38 mm length) and a stainless steel washer with integral rubber seal (28 mm diameter) such as "Zamac Hammer-Screw" as manufactured by Powers.

4. Steel Substrate:

a. Fasteners for securing wood to steel substrate shall be self-drilling coated heavy duty screw, 6 mm diameter (minimum), with 16 mm diameter washer such as "#14 Heavy Duty Screw" by Olympic.

b. Fasteners for securing steel to steel substrate shall be self-tapping steel screw with steel washer and integral rubber seal.

5. Plywood Clip: 18 gauge galvanized steel H-clip such as "PSCL Plywood Sheathing Clip" by Simpson Strong-Tie Co., Inc.

6. Receiver in Reglet: Soft, malleable lead sheet, size and shape to fit in joint and maintain compression against receiver.

E. Deck Patching Materials - Concrete Deck: Multi-component, polymer modified Portland cement mortar, trowel grade such as "SikaTop 122 Plus" by Sika, "Sonopatch 300" by Sonneborn, or approved equal.

F. Gypsum Sheathing; 16 mm thick moisture resistant gypsum core with pre-treated fiberglass facer such as "DensDeck Prime Roof Guard" or "DensDeck DuroGuard" by Georgia Pacific or "Securock" by US Gypsum Co.

G. Rust Inhibitive Primer: 100 percent acrylic resin primer such as "Metalclad Interior-Exterior Acrylic Latex Flat Primer & Finish #41702", Devoe & Reynolds Co.

H. Piping/Conduit Supports: Pre-manufactured assembly with molded plastic/rubber base, 250 mm by 400 mm; 13 mm threaded rods and accessory bar, "Type SS8-C with Channel" for conduit/condensate or "Type SS8-R with Roller" for steel/gas piping or "Type PP-10" with strut or roller as manufactured by Portable Pipe Hangers, Houston, Texas (800/797-6585).

I. Equipment Supports: Pre-manufactured supports constructed from 47 mm by 47 mm 12 gauge channel steel with rectangular support bases and steel angle supports. Provide threaded rod to connect supports such as "Type RTU-20" as manufactured by Portable Pipe Hangers, Houston, Texas (800/797-6585).

J. Non-shrink Grout: Nonshrink, noncorrosive, grouting compound; CRD-C-621, Type D, such as "SonogROUT 10K", Sonneborn Building Products, or approved equal.

K. Isolator Pads: 13 mm to 18 mm thick panel composed of recycled rubber particles such as "Roof-Gard Pads" by Humane Manufacturing, LLC (805 Moore Street, Baraboo, Wisconsin 53913, 800/369-6263), "Duo-Pad" by W.R. Meadows, or "Walkway Roof Pads" by RB Rubber Products, Inc. (904 N.E. 10th Avenue, Portland, Oregon 97128, 503/472-4691).

PART THREE - EXECUTION

3.01 EXAMINATION:

- A. Examine existing building and existing roofing to determine existing physical conditions that affect removal of existing roofing and installation of new roofing.
- B. Verify that required barricades and other protective measures are in place.

3.02 PREPARATION:

- A. Take measures to maintain watertight conditions during term of Contract.
- B. Install interior protection and dust partitions where deck penetrations shall be removed or replaced.
- C. Protect adjacent surfaces.
- D. Roof Drains:
 - 1. Examine existing drain lines for debris or blockage.
 - 2. Clean drains and drain lines, removing debris, excessive bitumen, or aggregate. Flush with water to ensure that drains flow freely.
 - 3. Cap drains with drain plugs during daily operations.
 - 4. Remove plugs after daily clean-up and prior to onset of rainfall.

3.03 MINOR DEMOLITION OPERATIONS:

- A. Execute demolition in careful and orderly manner with least possible disturbance or damage to adjoining surfaces and structure.
- B. Avoid excessive vibrations in demolition procedures that would be transmitted through existing structure and finish materials.
- C. Roof Removal:
 - 1. Remove existing roofing, insulation, and flashings; abandoned and obsolete equipment; pitch pans, vents, curbs, and other such items; and sheet metal down to lightweight insulating concrete substrate or roof deck.
 - 2. Do not stockpile debris on roof surface. Promptly dispose of obsolete equipment and debris at authorized disposal site each day. Use chutes to transfer debris from roof surface to dumpsters.

3. Provide protective method, such as plywood set on minimum 25 mm EPS insulation, when hauling debris over existing roof membrane.

3.04 MINOR RENOVATION WORK:

A. Prepare substrates in accordance with roofing manufacturer's recommendations.

B. Decking:

1. Install new decking of like type, weight, gauge, and dimensions to provide suitable substrate in areas of deteriorated deck or where penetrations through deck are removed.
2. Concrete Decking:
 - a. Perform repairs to concrete deck in accordance with patching material manufacturer's recommendations.
 - b. Apply rust inhibitor to exposed rebar.
 - c. Remove loose and defective concrete.
 - d. Patch spalled areas and exposed rebar areas with non-shrink grout.
 - e. Trowel smooth the properly placed grout.
 - f. Seal cracks and/or joints in concrete deck with modified bitumen membrane prior to installation of new roof materials.
 - g. Cover holes or openings 300 mm in diameter or smaller with a plate of 1.214 mm (18 gauge) sheet metal. Extend plate minimum 100 mm beyond edge of hole and onto adjacent unaffected rib.
 - h. Holes or openings greater than 300 mm by 300 mm, frame opening with wood nailers with intermediate spanning members spaced 400 mm on-center. Install plywood flush with top of deck. Install layer of gypsum sheathing on bottom side of nailers. Provide finish on bottom side of opening to match adjacent finish in exposed areas.

C. Nailers:

1. Replace damaged or deteriorated wood nailers and curbs with new nailers and curbs as required.
2. Install additional nailers as required as part of Base Bid price.
3. Clean and prepare existing surfaces to receive wood nailers and curbs.
4. Install wood nailers and curbs continuously with 6 mm gap between each section. Set level and true. Pre-drill nailers prior to attachment.
5. Securely fasten to structure with appropriate fasteners to resist minimum 780N per 300 mm force in any direction. Use of powder-actuated fasteners is prohibited. Place a fastener within 75 mm of each end of each section of wood blocking.
6. Secure nailers to concrete deck with appropriate fasteners spaced 600 mm on-center.
7. Secure nailers to metal deck with screws spaced 300 mm on-center, 150 mm on-center, 3 m from each corner.
8. Secure nailers to wood substrate using nails 600 mm on-center, staggered. Install nails on an angle.
9. Secure nailers with self-tapping steel fastener to steel angle, bar joist, or bulb-T if adequate substrate is not present.
10. If attaching wood nailer to vertical masonry wall, utilize appropriate anchors spaced 300 mm on-center.
11. Reduce fastener spacing 50 percent at a distance of 3 m from each corner.

12. Secure new nailer to existing curb to achieve proper flashing height. Secure nailers utilizing gusset plates and framing anchors.

D. Equipment and Curb Renovation:

1. Remove, retain, and reinstall existing equipment as required to facilitate new flashing.
2. Securely fasten equipment on curbs after new flashing is installed.
3. Curb and hatch flashing height shall be 200 mm minimum above newly finished roof surface.
4. Include raising of curb flashing to provide minimum 200 mm height in base bid cost.

E. Rooftop Equipment:

1. Move and elevate air conditioning units and other rooftop equipment as required to install roofing materials complete and in accordance with plans and specifications.
2. When units or equipment are to be moved, disconnect and move to protected area to prevent damage to parts or components. Reset and reconnect at Contractor's expense.
3. Disconnection and reconnection shall be performed by mechanical and/or electrical company licensed to perform such work and approved by COR.
4. Install equipment on top of curb or pre-manufactured support. Secure equipment to curb with grommetted fasteners spaced 300 mm on-center, minimum two fasteners per side. Set equipment on top of premanufactured support and secure to support. Install support on top of concrete pavers. Install isolator pads between base of equipment and metal cap, curb, or support.

F. Curbs and Ducts: Secure and modify curbs, ducts, and other work which pass through roof as required to receive new roofing system.

G. Condensate Lines: Raise and reroute existing condensate lines and supports as required. Provide positive drainage of piping. Reinstall existing and install new condensate lines at existing or new units where discharge is directed onto roof. Route lines to discharge into nearest drainage medium (i.e. drain, gutter, etc.).

H. Piping and Conduit Modifications:

1. Schedule piping and unit downtime for equipment modifications to coordinate with Embassy's operations. Switchover time shall be limited to meet Embassy's requirements.
2. Replace existing supports for units and associated piping with new supports.
3. Provide temporary supports to maintain unit and piping in operational condition except during switchover.
4. Furnish new fittings, piping, and accessories to match existing to replace deteriorated, damaged, or non-functional components or to accommodate new unit elevation, where necessary.
5. Upon completion of roof installation, paint piping with aluminized paint and replace or clean jacketing.

I. Piping Supports:

1. Furnish and install new supports for piping (conduit, gas, water, condensate, etc.).

2. Install supports at maximum spacing of 3 m on-center and within 600 mm of changes in plane or direction. Space supports for piping 250 mm in diameter or larger and multiple pipes 2.4 m on-center.

J. Plumbing Vents:

1. Extend plumbing vents or modify as necessary to accommodate new roof installation.
2. Provide pipe extensions and couplings where necessary to achieve minimum 200 mm height above top of newly finished roof surface.
3. Utilize same material type and size as existing for new extension.

K. Ventilators: Raise ventilators as required for 200 mm minimum flashing height.

L. Sheet Metal Fabrications:

1. Remove and replace ferrous rooftop sheet metal fabrications to match existing.
2. Modify existing sleeves and umbrellas on existing equipment as scheduled.
3. Repair and renovate non-ferrous rooftop and drainage system sheet metal fabrications as required for permanent watertight installation.
4. Paint sheet metal with metal primer.

M. Existing Concrete Curbs/Pads to be Removed:

1. Remove designated concrete curbs/pads.
2. Remove concrete by using rotary saws, jackhammers, or other mechanical method designed for this use and to achieve desired finished product. Provide finish in subject areas suitable to receive new roofing.

3.05 CLEANING:

A. Materials, equipment, and debris resulting from demolition operations shall become property of Contractor. Remove and dispose of demolition debris in accordance with applicable city, state, and federal laws at authorized disposal site.

B. Leave substrate clean and dry, ready to receive roofing system.

END OF SECTION

SECTION 07220 - ROOF AND DECK INSULATION

PART ONE - GENERAL

1.01 SECTION INCLUDES:

- A. Installation of new loose-laid insulation, new drain board, new filter fabric, and new concrete pavers over concrete deck.
- B. Installation of new mechanically attached insulation and adhered secondary layer of insulation over steel deck.

1.02 RELATED SECTIONS:

- A. 07525 - Modified Bitumen Membrane Roofing.

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM).
- B. Standards:
 - 1. Factory Mutual Approval Guide.
 - 2. Underwriters Laboratories: Building Materials Directory.
 - 3. National Roofing Contractors Association (NRCA): The NRCA Roofing and Waterproofing Manual, Fifth Edition, 1997.

1.04 QUALITY ASSURANCE:

- A. Regulatory Requirements:
 - 1. Classified by Underwriters Laboratories Inc. as Class A rated material.
 - 2. Follow local, state, and federal regulations, safety standards, and codes. When conflict exists, the more restrictive document shall govern.
- B. Installation:
 - 1. Install in accordance with manufacturer's current published application procedures and general requirements of NRCA.
 - 2. Consider roof system manufacturer's technical specifications part of this Specification and use as reference for specific application procedures.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Store materials in accordance with manufacturer's recommendations.
- B. Outdoor Storage:
 - 1. Tarp and shield insulation from moisture and ultraviolet rays.
 - 2. Elevate insulation above substrate 100 mm minimum.
 - 3. Secure insulation to resist high winds.
 - 4. Do not use insulation which has been determined "wet" or which has been wet and has dried.

5. Distribute insulation stored on roof deck to prevent concentrated loads that would impose excessive stress or strain on deck or structural members.
6. Remove manufacturer plastic shrink wrapping from materials.

1.06 SEQUENCING AND SCHEDULING:

- A. Plan roof layout with respect to roof deck slope to prevent rainwater drainage into completed roofing.
- B. Do not install more insulation than can be made watertight in same day.

1.07 PROJECT CONDITIONS:

A. Environmental Recommendations:

1. Apply roofing and insulation in dry weather.
2. Do not proceed with roof construction during inclement weather or when precipitation is predicted with 30 percent or more possibility.
3. Do not apply insulation over wet or moist deck or in foggy conditions.
4. Consider days when wind speeds are 48 kph or greater as "bad weather" days.

B. Maintain on site equipment and material necessary to apply emergency temporary seals in event of sudden precipitation. Costs for emergency roofing shall be paid by Contractor.

PART TWO - PRODUCTS

2.01 INSULATION:

A. Loose-Laid Insulation Layer: Extruded polystyrene foam board, ASTM C-578- 85, Type VI, 50 mm thick (single layer), 600 mm by 2,400 mm sized boards with 13 mm by 6 mm drainage channels along lower side edges of panels such as "Styrofoam Roofmate" by Dow Chemical Co., or approved equal.

B. Mechanically-Attached Insulation Layer: Rigid, closed-cell polyisocyanurate rigid board insulation utilizing non-chlorine/non-ozone depleting blowing agent, bonded to non-asphaltic fiber-reinforced glass fiber facers, 1.5-inches (37.5mm) thick, 4 feet by 8 feet maximum board size, such as "ACFoam-II" by Atlas Roofing Corp., "Energy Guard" by GAF, "E'NRG'Y 2" by Johns Manville, "Iso 95+" by Firestone, or approved equal.

C. Adhered Insulation Layer: Moisture-resistant gypsum board, 1/2-inch thick, moisture-resistant gypsum core panel such as "Dens Deck Primed" by Georgia Pacific or "SecureRock" by U.S. Gypsum.

2.02 RELATED MATERIALS:

A. Compressible Fill Insulation:

1. Foil or paper faced compressible fiberglass batten roll insulation.

2. Insulation shall be proper size and thickness to insert at openings at penetrations, perimeters, and curbs.
3. Acceptable Product: As manufactured by Owens Corning.

B. Filter Fabric: Non-woven, polypropylene filter fabric, white in color, such as "Tygar SF" by Dupont.

C. Concrete Paver: Precast concrete paver (minimum 20,670 kN/m² (3,000 psi), 338 mm by 338 mm by 38 mm with smooth bottom and top surfaces, natural concrete color finish and rounded or beveled edges and corners.

D. Prefabricated Drainage Course: A composite drainage system consisting of a three-dimensional, crush-proof drainage polystyrene core and a non-woven filter fabric on one side of the core, and a polymeric sheet adhered to the back of the core, 732 kN/m² (15,000 lb/ft²) compressive strength, such as "Miradrain 6200" by TC Mirafi, "J-Drain 420" by JDR Enterprises, Inc., or "Amerdrain 520" by American Wick Drain Corporation.

E. Slip Sheet: 0.5 mm polyethylene sheeting.

F. Paver Pedestal: High-density polyethylene grid structure with leveling plates/ shims such as "Pave-EL Paver Pedestals" by Envirospec, Inc. or "Paver Support Pedestal" by Hanover.

G. Insulation Fasteners - Steel Deck: CR-10 fluorocarbon coated, self-tapping screws of sufficient length to penetrate the steel deck a minimum of 1-inch (25mm), minimum 3-inch (75mm) diameter steel plates with recessed screw head for use with insulation, such as "#12 Standard Roofing Fastener" as manufactured by Olympic Fasteners, "UltraFast Fasteners" by Johns Manville, "Drill-Tec CDP Fastener" by GAF, or approved equal.

H. Heat Resistant Insulation: Molded hydrous calcium silicate-based or perlitebased heat resistant rigid pipe insulation, pre-manufactured, 2-inches in thickness and sized for installation around circular/tubular element such as "Sproule Pipe Insulation" or "Thermo-12 Gold" by Industrial Insulation Group, 800/334-7997.

I. Insulation Adhesive - Low Rise Foam Adhesive:

1. Single-component Moisture-cured Adhesive; ASTM D 2126, dispensed from portable pressurized containers, such as "Insta-Stik Professional Roofing Adhesive" by Dow Chemical Co. or "I.S.O. Fix Adhesive" by Firestone.
2. Dual-component Reaction-cure Adhesive: Two-part spray-applied lowrise urethane foam adhesive such as "OlyBond" by Olympic Manufacturing Group or "Sure Seal FAST 100 or 102 Adhesive" by Carlisle.
3. Two-component liquid-applied low-rise foam adhesive such as "Weather- Tite One Step Foamable Adhesive" by Millenium Adhesive Products, Inc. or "Tite Set" by PolyFoam Products.

PART THREE - EXECUTION

3.01 EXAMINATION:

A. Roof system manufacturer's representative shall inspect roof deck and associated substrates and provide written acceptance of conditions.

B. Manufacturer's approved roofing contractor shall inspect and approve deck and substrates.

C. Roofing contractor shall examine roof deck and related substrates and verify that there are no conditions that would prevent roof system manufacturer's approved application of roof system.

These conditions include, but are not limited to, the following:

1. Inadequate anchorage of decking or substrates to structure.
2. Accumulations of moisture.
3. Tears, holes, cracks, or punctures.
4. Ridges, uneven conditions, or gaps.
5. Rust or other forms of deterioration.
6. Presence of foreign materials.

D. Start of work constitutes acceptance of substrate and site conditions.

3.02 PROTECTION:

A. Provide special protection from traffic on yet to be removed roofing and newly installed roof.

3.03 PREPARATION:

A. Do not install insulation until defects in roof deck and substrates are corrected in order to meet roof system manufacturer's requirements and to ensure that deck conditions will not restrict roof drainage.

B. Broom sweep and clean areas to receive new insulation.

C. Non-Nailable Substrate, Concrete Substrate: Prime deck substrate with asphalt primer at rate of 3.8 liters per 14 to 18.6 square meters.

3.04 APPLICATION:

A. Installation of Loose Laid Insulation:

1. Prefabricated Drainage Course Placement:
 - a. Install drainage course in accordance with the manufacturer's recommendations.
 - b. Layout and position drainage course and allow to lay flat. Cut and fit drainage course along walls, curbs, and around penetrations.
 - c. Connect adjacent panels at the longitudinal edge by pulling the filter fabric back to expose the flange. Place the flangeless panel edge on top of the flange of the adjacent panel and butt dimple to dimple.

- d. Expose two rows of dimpled core by pulling the filter fabric back at panel end. Place the end of the next two panels over the two rows of dimples and interlock.
 - e. Complete connections in shingle fashion from top to bottom so that moisture will flow with the overlap and not against it.
 - f. Overlap fabric in the direction of water flow. Secure terminal edges with the filter fabric flap by tucking behind the core.
 - g. Wrap drain assemblies with strip of drainage course material and secure with adjustable tie.
 - h. Wrap exposed edges of drainage course material with filter fabric.
 - i. Place subsequent topping materials as soon as possible.
 - j. If drainage layer to be installed does not have polymeric sheet on bottom side, install slip sheet on top of membrane prior to installation of drainage course.
2. Insulation Board, Filter Fabric, and Paver Placement:
- a. Over the drainage course, loose lay new and/or salvaged extruded polystyrene roof board.
 - b. Fit all boards tightly, allowing no more than 9.4mm (3/8-inch) between boards. Insulation should be cut and placed as necessary, to be not more than 19mm (3/4-inch) from all cant strips and projections through the roof.
 - c. Once the insulation boards have been placed over the entire area, install a single ply of the specified filter fabric, lapping each sheet not less than 300 mm over the preceding sheet.
 - d. Extend the fabric 50 mm to 75 mm at penetrations, curbs, and walls.
 - e. Extend fabric up to the base of the scuppers and drains, but do not cover the scupper/drain or in any way restrict the flow of water.
 - f. Install new and/or salvaged concrete pavers over filter fabric over the entire roof area set on top of salvaged and/or new pedestals.
 - g. Custom cut concrete pavers to install around drains, penetrations, curbs, and along parapet/rise walls to provide complete coverage of overburden on top of insulation and filter fabric. Install partial pavers on pedestals.

B. Mechanically-Attached Base Insulation Layer:

1. Mechanically attach base insulation layer to deck.
2. Install insulation so that base insulation board ends and sides bear completely on ribs of the steel deck a minimum of 1/2-inch (13mm).
3. Install insulation with longitudinal joints continuous and end joints staggered.
4. Mechanically fasten base insulation layer to roof deck in strict accordance with manufacturer's criteria; or as a minimum one fastener per 2 square feet (0.2 square meters). Increase the number of fasteners per board by 50 percent within a minimum 4 foot (1.2m) wide strip at the perimeter and 100 percent within an 8 foot by 8 foot (2.4m by 2.4m) area in the corners.
5. Fully engage and seat fasteners. Do not overtighten or strip threads. Bent, deformed, or unseated fasteners or plates are unacceptable.
6. Fasteners must penetrate deck 1/2-inch (13mm), minimum, through the top flange (rib) of the deck. Do not overdrive fasteners. Remove and replace overdriven, stripped, or non-engaged fasteners.

7. Properly seat mechanical fasteners and keep heads flush with plates. Cupped plates or unseated screw heads are not acceptable.
8. Do not rupture or deform surface of the insulation by mechanical fastening.

C. Adhered Layers of Insulation:

1. Stagger end joints of insulation boards minimum of 1/3 of overall length. Long joints shall be continuous.
2. Butt joints tightly allowing no more than 1/4-inch (6mm) wide gaps between units. Fill joints between adjacent boards with like insulation.
3. Do not use warped or bent insulation units.
4. Field cut and fit units at penetrations.
5. After installation of initial layer of insulation, install subsequent layers of insulation directly over preceding layer.
6. Stagger all joints (side and end) between layers of insulation.
7. Field cut tapered insulation boards to create crickets at upslope side of curbs, along walls, and between drains and to form sumps at drains.

D. Ribbon Application (Low-rise Foam Adhesive):

1. Dispense one lineal foot of 3/4-inch to 1-inch (19mm to 25mm) diameter continuous ribbon of adhesive for each square foot of insulation board.
2. Place the initial ribbon of adhesive 3-inches (75mm) inside each edge of the insulation board. Apply three additional parallel ribbons of adhesive spaced approximately 14-inches (350mm) apart.
3. Firmly set insulation boards in ribbons of foam adhesive.
4. Insulation boards shall be set immediately following application of the adhesive and walked-in to spread the adhesive ribbon, ensuring maximum contact. Walk on boards every five to seven minutes or set weighted objects on boards until insulation is firmly attached (approximately 20 to 45 minutes).
5. On additional insulation layers, dispense ribbons of adhesive in direction perpendicular to the direction of the beads that were dispensed on the underlying layer.
6. Dispense ribbons of adhesive spaced 6-inches (150mm) on-center along a 4 foot wide area along the roof perimeter and corners.

E. Uniform Application (Spray-applied Foam Adhesive):

1. Apply adhesive at a nominal rate of one gallon per 100 square feet as recommended by manufacturer.
2. Apply adhesive to provide complete coverage over the subject and to achieve a material rise of 1/4-inch (nominal).
3. Embed insulation into adhesive while adhesive is still set and tacky and shortly after it has reached its maximum rise, or typically within two minutes of the application.

F. Insulation Filler: Install compressible fiberglass insulation at openings in deck at penetrations, perimeters, and/or curbs.

3.05 CLEANING:

A. Remove debris and material wrappers from roof to dumpster daily. Leave insulation clean, dry, and ready to receive new roofing.

3.06 ADJUSTING:

A. Remove damaged insulation and install acceptable new units before installation of roof system.

3.07 PROTECTION:

A. Provide special protection from traffic on completed work.

END OF SECTION

SECTION 07525 - MODIFIED BITUMEN MEMBRANE ROOFING
PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Installation of new two-ply modified bitumen roof system and related flashings.

1.02 RELATED SECTIONS:

A. 02072 - Minor Demolition and Renovation Work.

B. 07220 - Roof and Deck Insulation.

C. 07620 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).

1.04 QUALITY ASSURANCE:

A. Application:

1. Approved by manufacturer of accepted roofing system.
2. A single applicator with a minimum of five years previous successful experience in installations of similar systems.

B. Regulatory Requirements:

1. Products Manufactured in the United States.
 - a. Classified by Underwriters' Laboratories, Inc. as a Class A roof covering.
 - b. Classified by Factory Mutual Engineering as a Class 1 approved assembly.
2. Products Manufactured in Countries Outside United States: Products shall be approved by governing/sanctioning entity for country in which project is located.
3. Follow federal regulations, safety standards, and codes mandated in the United States.

C. Laboratory Testing and Samples:

1. At COR's request, obtain field samples of the completed roof membrane, laps, and/or assembly.
2. Take samples at locations designated by Consultant and test for compliance with the requirements on the Contract Documents and with manufacturer's published performance criteria.
3. Perform test in accordance with accepted ASTM methods.
4. Assume all costs for extraction and patch of all samples.
5. Correct all deficiencies in accordance with the manufacturer's recommended procedures at no cost to Embassy.
6. If for any reason, areas that are tested by COR fail to meet manufacturer's requirements, then all subsequent expense for retesting of those areas will be borne by Contractor.

D. Installation:

1. Install in accordance with manufacturer's current published application procedures and the general recommendations of the National Roofing Contractor's Association.
2. Follow Underwriters Laboratories requirements acceptable for use with specified products or systems.
3. Upon completion of installation, an inspection shall be conducted by a technical representative of the manufacturer to certify that roofing system has been installed according to manufacturer's most current published specifications and details.
4. All roofing shall be as described in this Section and shall be provided and/or approved by roof system manufacturer.
5. Obtain written approval from the manufacturer for any materials not manufactured or provided by manufacturer stating that materials are acceptable and are compatible with other materials and systems required.

E. Make no deviations made from this Specification or the approved shop drawings without prior written approval of COR and roof membrane manufacturer.

F. Perform entire work of this Section in accordance with the best standards of practice relating to the trades involved.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.

B. Store materials in accordance with manufacturer's recommendations. Store rolled goods on clean raised platforms. Store other materials in dry area, protected from water and direct sunlight, and maintain at a temperature of 16 to 27 degrees Celsius.

C. Provide continuous protection of materials against deterioration.

D. Materials Stored on Roof Levels for Immediate Use:

1. Distribute to prevent concentrated loads that would impose excessive strain on deck or structural members.
2. Positively secure to prevent displacement by wind.
3. Tarp for protection from exposure.
4. Cut and remove manufacturer's plastic "shrink wrapping" from materials during storage.

1.06 PROJECT CONDITIONS:

A. Existing Conditions: Examine existing building and existing roofing and decking to determine physical conditions that affect removal of existing roofing and installation of new roofing and decking.

B. Environmental Requirements:

1. Apply roofing in dry weather.
2. Do not remove existing roofing and flashing in inclement weather or when rain is predicted (30 percent or more possibility).
3. Do not remove existing roofing and flashing when ambient temperature is below 4 degrees Celsius.
4. Do not expose membrane and accessories to a constant temperature in excess of 82 degrees Celsius.

C. Protection:

1. Provide special protection or avoid heavy traffic on completed work when ambient temperature is above 26 degrees Celsius.
2. Restore to original condition or replace work or materials damaged during handling or roofing materials.

D. Emergency Equipment: Maintain on-site equipment necessary to apply emergency temporary edge seal in the event of sudden storms or inclement weather.

1.07 SEQUENCING AND SCHEDULING:

A. Do not remove more existing roofing in one day than can be replaced with new roofing and flashing in same day.

1.08 WARRANTY:

A. Submit to CO, prior to final payment, two copies of the following warranties:

1. Roofing Material Manufacturer's Warranty: Install in such a manner that the roof system manufacturer will furnish a written warranty agreeing to replace/repair defective materials, including leakage of water, abnormal aging or deterioration of materials, and other failures of the materials to perform as required within warranty period. Warranty period is ten years after date of written final acceptance by COR.
2. Contractor's Warranty: In addition, furnish a written warranty agreeing to repair/replace defective installation and workmanship labor causing leakage of water, deterioration of materials, and other failures of the installed system, sealants, painting, coatings, and related work on this project, to perform as required within the warranty period. Warranty period is ten years after date of written final acceptance by COR.

PART TWO - PRODUCTS

2.01 MANUFACTURER:

A. Acceptable Roofing Manufacturers:

1. Certaineed.
2. Performance Roof Systems, Inc.
3. GAF.
4. U.S. Ply, Inc.
5. Siplast.

6. Or approved equal.

2.02 SHEET MATERIALS:

A. APP Modified Bitumen Roof Systems:

1. IRMA Roof Configuration: Membrane Base Ply and Top Ply – Smooth surfaced, polyester reinforced, torch-applied APP modified bitumen sheet such as “Ruberoid Torch Smooth” by GAF, “Derbigum GP” by Performance, "Flintlastic STA" by Certainteed, "Duraweld 4S" by U.S. Ply, Inc.
2. Conventional Roof Configuration:
 - a. Membrane Base Ply: Smooth surfaced, polyester reinforced, torch-applied APP modified bitumen sheet such as “Ruberoid Torch Smooth” by GAF, “Derbigum GP” by Performance, "Flintlastic STA" by Certainteed, "Duraweld 4S" by U.S. Ply, Inc.
 - b. Membrane Top Ply: Granule-surfaced, polyester reinforced, torchgrade, APP modified bitumen sheet such as “Ruberoid Torch Granule FR” by GAF, “DerbiColor FR” by Performance, "Flintlastic GTA FR" by Certainteed, "Duraweld 4M FR" by U.S. Ply, Inc.
3. Base Flashings:
 - a. Base Ply/Strip-in: Smooth-surfaced torch-grade, APP sheet such as “Derbigum GP” by Performance, "Duraweld 4S" by U.S. Ply, Inc. “Ruberoid Torch Smooth" by GAF, or "Flintlastic STA" by Certainteed.
 - b. Top Ply: Granule-surfaced, white in color, polyester-reinforced torch-grade APP modified bitumen sheet such as “Derbicolor” by Performance, “Ruberoid Torch Granule” by GAF, "Flintlastic GTA" by Certainteed, or "DuraWeld 4M" by U.S. Ply, Inc.

B. SBS Modified Bitumen Roof System:

1. IRMA Roof Configuration:
 - a. Membrane Base Ply: Smooth-surfaced, fiberglass/polyester reinforced, torch grade SBS modified bitumen sheet such as "Paradiene 20 TS TG" by Siplast.
 - b. Membrane Top Ply: Smooth-surfaced, polyester reinforced, torch grade SBS modified bitumen sheet such as "Teranap" by Siplast.
2. Conventional Roof Configuration:
 - a. Membrane Base Ply: Smooth surfaced, fiberglass reinforced, torch grade SBS modified bitumen sheet such as "Paradiene 20 TG" by Siplast.
 - b. Membrane Top Ply: Granule surfaced, white color, fiberglass reinforced, torch grade SBS modified bitumen sheet such as "Paradiene 30 FR TG" by Siplast.
3. Baseflashing System:
 - a. Base Ply: One-ply of base ply.
 - b. Top Ply: Aluminum foil faced torch grade SBS modified bitumen sheet such as "Veral" by Siplast.

2.03 RELATED MATERIALS:

A. Asphalt Primer: ASTM D 41.

B. Edge Sealant: Rubberized asphaltic plastic roof cement that is gun-grade version for sealing top edges of base flashings and terminations of cap sheet such as “Elastomastic 209” by Henry Co. or “BlackJack 1010” by Gibson Homas.

- C. Elastomeric Plastic Roof Cement: Rubberized plastic roof cement/adhesive such as “PerFlash” by Performance to be used for temporary seals of flashings and three coursing of seams and cuts in modified bitumen sheets.
- D. Reinforcing Fabric: 150 mm wide asphalt coating fiberglass or polyester mesh.
- E. Cant Strip: Quick-set cementitious non-shrink, non-metallic patching compound installed with 9 mm aggregate in "dry pack" to form cants such as "SikaSet Mortar" by Sika.

2.04 MISCELLANEOUS MATERIALS:

- A. Best grade or quality approved by the manufacturer for the specific application.

PART THREE - EXECUTION

3.01 EXAMINATION OF SURFACES:

- A. Contractor shall examine the substrate, roof deck, and related surfaces and verify that there are no conditions such as inadequate anchorage, foreign materials, moisture, ridges, or other conditions which would prevent the satisfactory installation of the roofing system.
- B. Correct or complete any condition requiring correction or completion prior to the installation of the roofing system. Notify Consultant in writing of unacceptable conditions.
- C. Verify the location of all interior ducts, electrical lines, piping, conduit, and/or similar obstructions. Perform all work in such a manner as to avoid contact with the above-mentioned items.
- D. Verify insulation is installed correctly.
- E. Start of work under this Part Three constitutes acceptance of substrate and site conditions.

3.02 PREPARATION:

- A. Do not stockpile debris on roof surface.
- B. Promptly remove debris each day. Use hoist to transfer debris from roof surface to disposal container.
- C. Cleaning:
 - 1. Verify that debris has been completely removed.
 - 2. Broom clean and airblow substrate immediately prior to surface preparation.
 - 3. Priming Non-Nailable Substrate (Concrete Substrate): Prime deck substrate with asphalt primer at rate of 3.8 liters per 14m² to 19m².

3.03 APPLICATION:

- A. Prior to roof membrane installation, seal all openings, projections, and penetrations in the substrate to prevent bitumen migration into the building. Correct damage to the building or interior components caused by bitumen migration at Contractor's own expense.
- B. Membrane Installation:

1. General: Apply roofing in accordance with roofing system manufacturer's instructions and the following requirements.
2. Aesthetic Considerations: The overall appearance of the finished roof application is a standard requirement for this project. Make necessary preparations, utilize recommended application techniques, apply specified materials, and exercise care to ensure finished application is acceptable to COR.
3. Priming: Prime top and bottom of metal flanges (all jacks, edge metal, lead drain flashings, etc.) and concrete and masonry surfaces with a uniform coating of asphalt primer, at a nominal rate of 3.8 liters per 9.29 square meters.
4. Form cementitious cants on top of deck at walls and curbs prior to application of roofing. Mix and install cementitious material in accordance with manufacturer's recommendations. Install cants to form transition from horizontal to vertical substrates and continuous at corners.
5. Roofing Application: Lay all layers of roofing free of wrinkles, creases, or fishmouths. Exert sufficient pressure on the roll during application to ensure prevention of air pockets.
6. Lay layers of roofing perpendicular or parallel to the slope of the deck as recommended by manufacturer.

C. Membrane Base Ply Application:

1. Unroll sheet and cut into 15 foot (5m) lengths. Lay cut sections of sheet down to allow sheet to relax prior to application. Prior to application, reroll "relaxed" sheet using cardboard insert provided with roll.
2. Beginning at the low point on the roof, fully, adhere the modified bitumen sheet to the substrate. Maintain a steady torching technique to ensure that the entire bottom surface of the sheet achieves the proper temperature for adhesion. Keep the roll in close proximity to the torch technician. Exert sufficient pressure on roll during application.
3. Apply heat evenly across the face and full width of the roll while unrolling roll uniformly with an even downward pressure. Apply torch flame to roll until the bitumen back coating reaches the design application temperature, resulting in melting of the burn-off film, a glossy appearance of the back coating, and an approximate 6 mm to 13 mm bitumen flow from edge of sheet.
4. Fully adhere membrane base ply to substrate and have a minimum of 75 mm side laps and 150 mm end laps. Stagger end laps of adjacent sheets of membrane base ply a minimum of 1 m. Extend field sheet of membrane base ply to top edge of cant.
5. Complete membrane base ply application over respective roof area prior to application of membrane top ply. Apply additional ply of membrane base ply in low areas or areas that may be subjected to ponding water. Install base ply at roof drain with side lap centered over drain opening.
6. Apply a patch over areas of membrane with areas of physical damage or other defects. Patch shall be the full width of membrane base ply and extend a minimum of 50 mm beyond the defect in each direction.
7. Check lap seams and seal unbonded or discontinuous seams using a heated steel trowel.

D. Base Flashing Application - Base Ply:

1. Install and complete application of base ply of flashing each day the base ply of membrane is installed.
2. Install first ply of base flashing extending horizontally 100 mm beyond edge of cant or flange and vertically 100 mm, minimum above the top of the cant.
3. Length of base flashings shall be maximum 2 m. Lap ends of base flashings 100 mm, minimum. Seal top edge of base flashing on a daily basis with a continuous troweling of elastomeric roof cement.
4. Check lap seams and seal unbonded or discontinuous seams using a heated steel trowel.

E. Metal Flange Flashing (Pitch Pans, Metal Edge, Pipe Boxes, Vent Stacks, etc.):

1. Prime top and bottom of metal flanges completely and allow to dry prior to installation.
2. After membrane base ply has been applied, install metal flange according to Section 07620 - Sheet Metal Flashing and Trim. Strip-in flange with strips of base flashing (strip-in) extending a minimum of 100 mm beyond edge of flange.
3. Apply membrane top ply and terminate at the rise in the metal component.
4. Apply a target around penetrations or utilize flashing method to conceal cuts in the membrane top ply.
5. Apply a continuous bead of edge sealant along edge terminations of modified bitumen sheet (i.e. flashing flanges, exhaust vents, metal edge, etc.). Bead of edge sealant shall be "canted" to shed water.

F. Membrane Application - Top Ply:

1. Unroll top ply and cut into 15 foot lengths. Lay cut sections of top ply down to allow sheet to relax prior to application. Prior to application, re-roll "relaxed" sheet using cardboard insert provided with roll.
2. Beginning at the low point on the roof, fully adhere membrane top ply to membrane base ply and have a minimum of 75 mm side laps or width of selvage edge and 150 mm end laps. Extend membrane top ply to top edge of cant. Apply each sheet directly behind torch technician. Stagger side laps of top ply a minimum of 300 mm from side laps of base ply.
3. Apply heat evenly across the face and full width of the roll while unrolling roll uniformly with an even downward pressure. Apply torch flame to roll until the bitumen back coating reaches the design application temperature, resulting in melting of the burn-off film, a glossy appearance of the back coating, and an approximate 6 mm to 13 mm bitumen flow from edge of sheet.
4. During end lap application, trim the inside corner along the selvage edge of the underlying sheet at the end of the roll. The trimmed area shall be the width of the selvage edge and extend downward from the end of the roll to the outer side of the roll on a linear direction approximately 138 mm from end of roll. Trim outside corner of membrane top ply at end laps to provide rounded finished corner.
5. Install membrane top ply so that end laps of every other sheet is aligned.

6. Roof Drain: Install top ply centered over drain opening extending under clamping ring. Apply elastomeric plastic cement and reinforcing fabric on sheet to cover cuts made to conform sheet to sump. Install clamping ring and secure.
7. Apply a patch over areas of membrane with displaced top bitumen coating or other defects. Patch shall be the full width of membrane top ply and extend a minimum of 50 mm beyond the defect in each direction.
8. Check lap seams and seal unbonded or discontinuous seams using a heated steel trowel.
9. Apply membrane top ply and terminate at the rise in the metal component. Apply a continuous bead of edge sealant or molten APP modified bitumen compound along edge terminations of modified bitumen sheet (i.e. flashing flanges, exhaust vents, metal edge, etc.). Bead of edge sealant shall match height of surfacing and shall be "canted" to shed water.

G. Base Flashing Application - Top Ply:

1. Apply top ply of flashings only after membrane top ply is in place.
2. "Torch de-granulate" or prime granulated surfaces of flashings to receive flashing. Pre-heat the subject area of the underlying granule-surfaced sheet so that granules can be "depressed" or sunk into the compound and the bitumen compound exudes up through the granules to result in a bituminous material-to-bituminous material contact.
3. Cut modified bitumen flashing membrane to extend a minimum of 100 mm above the top of the membrane top ply covering the cant. The overall minimum height of the top of the flashing membrane above the top of the roof surface is 200 mm. Extend flashings to full height of vertical substrate.
4. Extend the flashing membrane horizontally 100 mm onto the field of the roof surface beyond the bottom edge of the cant strip.
5. Cut flashing from roll using selvage edge as lap seam for adjacent sheets resulting in sheet lengths of nominal 1 m. Lap ends a minimum of 100 mm and stagger laps from laps of underlying plies.
6. Fully adhere and conform top ply of flashing to substrate. Extend bleedout of applied base flashing a minimum of 12.5 mm beyond the side or end lap.
7. Mechanically attach top edge of modified bitumen membrane flashing with appropriate fasteners and termination bar. Space fasteners 150 mm on-center. Apply continuous troweling of elastomeric plastic roof cement and reinforcing fabric along top edge of base flashing.
8. Walls: Mechanically attach top edge of modified bitumen membrane flashing with appropriate fasteners and termination bar. Fastener spacing shall be 150 mm on-center. Apply three-coursing consisting of an initial continuous troweling of elastomeric plastic roof cement, embedded reinforcing fabric, and a secondary application of elastomeric plastic roof cement along and concealing the top edge of base flashing and termination bar.
9. Curbs: For curbs with non-removable hoods/covers/units, extend flashing to full height of curb, mechanically attach top edge of flashing with termination bar with appropriate fasteners secured 150 mm on-center and apply three-coursing of plastic cement and reinforcing fabric. For curbs with removable hoods/covers/units, wrap flashing sheet over

top of curb, secure to top or inside of curb with sheet metal angle termination bar and appropriate fasteners spaced 150 mm on-center.

10. Apply a boot or oval section of modified bitumen sheet over outside corners of curb flashings to conceal cuts in flashing material at corner laps.

11. Install flashing sheets on adjoining perpendicular sides (outside corners) of curbs or walls so that outside corners of flashing sheet align and are rounded.

12. Apply a three-coursing of elastomeric plastic roof cement and reinforcing fabric at vertical lap seams. Extend three-coursing under termination bar. Utilize masking or duct tape to create vertical straight edge of threecoursing. After application of three-coursing, remove tape. Embed granules into plastic cement, immediately after application, to achieve uniform base flashing color.

H. Daily Seal:

1. Install temporary night seal at completion of each day's work and remove upon resumption of work.

2. Ensure that water does not flow beneath any completed sections of the membrane system. This will include completion of all flashings, terminations, and daily seals. When possible, install starting at the highest point of the project area, working to the lowest point.

3. Seal membrane edge with continuous troweling of plastic roof cement. Caution must be exercised to ensure that membrane is not temporarily sealed near drainage medium in such a way to promote water migration below the membrane or impede drainage.

4. Install primary night seal beneath daily night seal in such a manner to seal both new and existing roof system to roof deck to prevent moisture migration from either old roof or new roof.

5. Install daily night seals by extending the new roof membrane beyond the insulation and sealing to the existing roof surface using plastic cement.

6. When work is resumed, remove and dispose of membrane where cement or other sealants were previously applied before resuming installation.

3.04 FIELD QUALITY CONTROL:

A. Inspections:

1. During installation, provide for one on-site inspection by a technical representative of roof membrane manufacturer.

2. Upon completion of installation, provide a final inspection by a technical representative of roof membrane manufacturer to confirm that roofing system has been installed in accordance with manufacturer's requirements.

3.05 CLEANING:

A. Remove debris, adhesives, and sealants from surfaces.

B. Remove debris and material waste from Project site.

END OF SECTION

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART ONE - GENERAL

1.01 SECTION INCLUDES:

- A. Shop or field-formed sheet metal work for moisture protection.
- B. Types of work specified in this Section include:
 - 1. Roof penetration sleeves and bonnets.
 - 2. Metal counterflashing.
 - 3. Metal coping.
 - 4. Expansion joints.
 - 5. Metal heat exhaust vents.
 - 6. Pipe box.
 - 7. Curb cap flashing.
 - 8. Primary and overflow drains.
 - 9. Miscellaneous sheet metal accessories.

1.02 RELATED SECTIONS:

- A. 02072 - Minor Demolition and Renovation Work.
- B. 07525 - Modified Bitumen Membrane Roofing.

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM).
- B. Federal Specifications (FS).
- C. National Roofing Contractor's Association (NRCA): NRCA Roofing and Waterproofing Manual, Fifth Edition, 1997.
- D. Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA): Architectural Sheet Metal Manual, Fourth Edition, 1987.

1.04 WARRANTY:

- A. Contractor's Warranty: Provide COR a written warranty which shall warrant sheet metal work to be free of leaks and defects in materials and workmanship for ten years after date of final acceptance by COR.
- B. For pre-finished metal, provide manufacturer's twenty year guarantee covering deterioration or failure of the fluoropolymer finish.

PART TWO - PRODUCTS

2.01 MANUFACTURERS:

- A. Acceptable Pre-finished Sheet Metal Manufacturers:
 - 1. Berridge Manufacturing Company.
 - 2. Peterson Aluminum Corporation (PAC CLAD).
 - 3. Architectural Building Components (ABC).
 - 4. Metal Building Components, Inc. (MBCI).

5. Or approved equal.

2.02 SHEET METAL MATERIAL:

A. Pre-finished Metal:

1. "Kynar 500" or "Hylar 5000" fluoropolymer pre-finished G90 galvanized steel, minimum 24 gauge. "Kynar 500" or "Hylar 5000" finish shall consist of a two coat Polyvinyladine flouride, minimum 70 percent by weight in coatings, dry film thickness 1 mil, factory applied by metal manufacturer or supplier.

2. Color: As selected by COR from manufacturer's standard color chart.

B. Zinc-coated (Galvanized) Steel Sheet: Commercial quality with 0.20 percent copper, in accordance with ASTM A 526 except ASTM A 527 for lock forming; coating designation G90 hot-dip galvanized, and mill phosphatized for painting in accordance with ASTM A 525 (paint-grip type).

C. Sheet Lead: FS QQ-L-201, Grade B; 140n/m² (4 pounds per square foot), 1.6mm thick, minimum, as used for overflow and primary roof drains.

D. Stainless Steel: ASTM A240, Type 304, ASTM A480, No. 2B/2D Mill Finish, gauge as scheduled.

2.03 FASTENERS:

A. Fasteners shall be same metal as flashing and sheet metal item being adjoined.

B. Exposed fasteners shall be self-sealing or gasketed for watertight installation.

C. Heads of fasteners, including but not limited to, rivets, screws, and bolts, that are exposed or visible shall have same manufactured finishes as item being secured; color to match when applicable.

D. Mechanical Fasteners:

1. In accordance with Section 02072 - Minor Demolition and Renovation Work.

2. Washers: Steel washers with bonded rubber sealing gasket.

3. Screws: Self-tapping sheet metal type compatible with material fastened.

4. Rivets: Stainless steel material for the stem and closed-end head, color to match adjoining metal.

2.04 RELATED MATERIALS:

A. Solder: ASTM B 32, alloy grade 58, 50 percent tin, 50 percent lead.

B. Flux:

1. Phosphoric acid type, manufacturer's standard.

2. For Use with Steel or Copper: Rosin flux.

3. For Use with Stainless Steel: Acid-chloride type flux, except use rosin flux over tinned surfaces.

C. Underlayment:

1. Metal Edge: PVC or vinyl sheeting; minimum 20 mil, such as "Nervastral HD" as manufactured by Nervastral, Inc. or "Lexsuo Water Barrier" by GAF.

2. Coping: Self-adhering rubberized asphalt sheet such as "Vycor Ultra" by Grace Construction Products or specified modified bitumen flashing sheet.

D. Vibration Isolator Pad: 13 mm thick compressed recycled rubber mat such as “Roof Gard” by Humane Manufacturing Co.

E. Metal Accessories: Sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gauge required for performance.

F. Grout - Pitch Pans:

1. Quick-setting formula meeting Corps of Engineers specification CRD-C-621, Type D.

2. Acceptable Product: “SonoGrout 10K”, Sonneborn Building Products, or approved equal.

G. Pourable Sealer:

1. Pourable polyurethane sealer, approved by roofing system manufacturer.

2. Acceptable Products:

a. "Quick Pitch Sealer" by U.S. Intec.

b. " Pourable Sealer S-10" by Firestone.

H. Termination Bar: 3 mm thick, 25 mm wide extruded aluminum bar with flat profile, factory punched oval holes (6 mm by 9 mm) spaced 150 mm on-center, such as "TB 125" by The TruFast Corp.

I. Stainless Steel Clamp: Stainless steel banding with worm-drive tightening, sized for application such as "Make-A-Clamp Kit" by Dynamic Fastener, 800/821- 5448.

J. Overflow Drain Screen: Stainless steel wire screen, 13 mm openings.

2.05 FABRICATION - GENERAL:

A. Fabricate work in accordance with SMACNA Architectural Sheet Metal Manual and other recognized industry practices and reviewed shop drawings.

B. Comply with material manufacturer's instructions and recommendations for forming material.

C. Shop fabricate work to greatest extent possible. Fabricate inside and outside corners for metal edges, counterflashing, and coping caps.

D. Fabricate for waterproof and weather resistant performance with expansion provisions for running work sufficient to permanently prevent leakage, damage, or deterioration of work. Form work to fit substrates.

E. Make angle bends and folds for interlocking metal with full regard for expansion and contraction to avoid buckling or fullness in metal after installation.

F. Form materials with straight lines, sharp angles, smooth curves, and true levels. Avoid tool marks, buckling, and oil canning.

G. Fold back edges on concealed side of exposed edge to form hem.

H. Lap joints 25 mm minimum. Rivet and solder joints on parts that are to be permanently and rigidly assembled.

I. Seams:

1. Fabricate non-moving seams in sheet metal with flat-lock seams.

2. Pre-finished Galvanized Steel: Seal pre-finished metal seams with rivets and silicone sealant.

3. Metal Other than Aluminum: Tin edges to be seamed, form seams, and solder.

J. Expansion Provisions: Where lapped or bayonet type expansion provisions in work cannot be used or would not be sufficiently waterproof or weatherproof, form expansion joints of intermeshing hooked flanges, not less than 25 mm deep, filled with mastic sealant concealed within joints.

K. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant in compliance with SMACNA standards.

2.06 PRE-FABRICATED ITEMS:

A. Expansion Joint Cover with Elastomeric Bellows: Bellows to consist of EPDM, hypalon, or other elastomeric type sheet laminated to foam rubber with 26 gauge stainless steel straight, curb-to-curb, or curb-to-wall metal flanges such as "Expand-o-Flash" as manufactured by Johns Manville or "Metalastic" by GAF. Provide factory fabricated continuous length of maximum length to suit project conditions and factory fabricated transitions and terminations. Expansion joint assembly shall be included under the terms and conditions of the warranty provided by roof membrane manufacturer.

2.06 FABRICATED ITEMS:

A. Counterflashings: Minimum 0.635 (24 gauge) prefinished galvanized steel formed in maximum 3 m lengths. Utilize two piece configuration at masonry walls.

B. Roof Penetration Flashing Base Collar and Bonnet: Minimum 0.635 (24 gauge) stainless steel, two-piece construction, fabricated in accordance with project drawings.

C. Metal Coping: Minimum 0.635 (24 gauge) pre-finished galvanized steel formed in maximum 3 m lengths. Fabricate interior and exterior corners from one continuous piece using .7 m minimum legs. Lap, rivet, and seal prior to installation.

D. Cleats/Clips:

1. Concealed Cleats/Clips: Continuous strips, same base material, and fascia profile, and next heavier gauge available as adjacent metal item.

2. Exposed Cleats/Clips: 0.635 (24 gauge) prefinished galvanized steel.

E. Penetration Flashing Pans: 0.635 (24 gauge) stainless steel. Fabricate with 6 mm hem at top edge and with 100 mm flanges with rounded corners. Fabricate to provide installed minimum clear inside perimeter dimension of 50 mm on each side of penetrating element and 150 mm height.

F. Roof Drains: Minimum 1.6mm thick lead sheet, 750mm by 750mm.

G. Pipe Box (Base, Hood, and Face Plate): 0.635 (24 gauge) stainless steel. Base shall be 200 mm in height, 100 mm wide flanges with rounded corners and sized to provide minimum 50 mm clearance between pipes and box.

H. Curb Caps: Minimum 0.635 (24 gauge) stainless steel.

I. Metal Expansion Joint Cover: Minimum 0.635 (24 gauge) stainless steel.

PART THREE - EXECUTION

3.01 EXAMINATION:

A. Verify that substrates are smooth and clean to extent needed for sheet metal work.

B. Verify that reglets, nails, cants, and blocking to receive sheet metal are installed and free of concrete and soil.

C. Do not start sheet metal work until conditions are satisfactory.

3.02 INSTALLATION

A. Install sheet metal with lines, arises, and angles sharp and true, and plane surfaces free from objectionable wave, warp, or buckle. Exposed edges of sheet metal shall be folded back to form 6 mm hem on concealed side from view. Finished work shall be free from water retention and leakage under all weather conditions. Prefabricated corners or transitions are required at changes in direction, elevation or plane, and at intersections. Locate field joints not less than 300 mm, nor more than 1 m from actual corner. Laps shall be 25 mm, riveted and soldered at following locations: prefabricated corners; transitions; changes in direction, elevation, and plane; and at intersections.

B. Anchor units of work securely in place to prevent damage or distortion from wind or buckling. Provide for thermal expansion of metal units; conceal fasteners where possible; and set units true to line and level as indicated. Install work with laps, joints, and seams permanently watertight and weatherproof.

C. Install fabricated sheet metal items in accordance with manufacturer's installation instructions and recommendations and with SMACNA Architectural Sheet Metal Manual.

D. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces with zinc chromate, bituminous coating, or other permanent separation at locations of contact as recommended by manufacturer or fabricator. Do not use materials incompatible with roofing system.

E. Continuous Cleat: At exposed edges of gravel guards, fascias, cap flashings, and where required, attach continuous cleat at 150 mm on-center with appropriate fasteners positioned on the vertical face. At a distance of 3 m from each direction of corner, install fasteners 75 mm on-center.

F. Metal Coping:

1. Install new sheathing to provide substrate to have a resulting positive slope (minimum 2 percent) toward roof.
2. Install and adhere underlayment or membrane over the substrate extending a minimum of 25 mm below top of wall system. Lap ends minimum of 75 mm and secure membrane in place.
3. Install metal coping. Lock coping onto cleat and install appropriate fasteners through the interior fascia spaced 600 mm on-center in enlarged holes.
4. Field form/crimp a vertical standing seam, 25 mm high, to join adjacent sections of coping. Install sealant, Type B, in seam prior to crimping.
5. On sloping walls, overlap adjacent sections of copings a minimum of 100 mm in direction of flow of water. Install a continuous bead of sealant sandwiched between overlapped section.
6. Accommodate building wall expansion joints by terminating coping joints and cleats either side of expansion joint. Do not run coping or cleats continuous across joints. Install coping cover plate to span across joint and lap coping on each side of joint a minimum of 100 mm. Fasten cover plate on one side of joint only.
7. Fabricate corners, end caps, and transitions from one piece of coping. Rivet and seal overlapped sections.
8. At rise walls, install coping termination with vertical flange and overlapping counterflashing assembly.
9. Install cap bead of sealant, Type B, over horizontal lap seam in coping. G.

Counterflashings:

1. Install new counterflashings under equipment housing flanges along building rise walls and parapet walls.
2. Trim vertical flange of existing flashings to achieve 25 mm piece to install new base flashing and secure new counterflashing.
3. Secure counterflashing with self-tapping screws spaced 150 mm oncenter.
4. Saw cut new joint in existing masonry/concrete where required and install new receiver. Secure new receiver in place with appropriate fasteners spaced 300 mm on-center. Apply sealant, Type A, continuously along reglet.
5. Lap adjacent sections of receivers and counterflashings a minimum of 100 mm. Apply a continuous bead of sealant, Type B, in lap.
6. Install wind clips to termination bar spaced 600 mm on-center.

H. Penetration Pans:

1. Fully solder joints and connections.
2. Prime top and bottom of flanges.
3. Heat soften the subject area of the membrane to receive the metal flashing.
4. Fill penetration pan to within 25 mm of top of pan with non-shrink grout. Fill remainder of pan with pourable sealer.
5. Install umbrella counterflashing or hood.

I. Roof Penetration Hoods and Umbrella Counterflashing:

1. Install watertight hood or umbrella counterflashing at sleeves and penetration locations, such as pipes and conduit penetrating roof, and at equipment supports and over penetration pans.
2. Round or Pipe Penetrations:
 - a. Set umbrella counterflashing in sealant, Type C; utilize Type B sealant at heat sensitive areas.
 - b. Secure hood/umbrella to penetrating element with steel draw bands.
 - c. Seal top of umbrella counterflashing with sealant, Type B.

J. Pipe Box:

1. Fully solder joints and connections.
2. Prime top and bottom of flanges.
3. Install metal flashing pan on top of base ply. Heat soften the subject area of the membrane to receive the metal flashing. Secure pan to substrate and strip-in flanges.
4. Fill pans with grout to a height of 3/4 of the total pan height.
5. Fill remaining height of pitch pans with pourable sealer.
6. Install hood over pan, securing to each side with self-tapping screws.
7. Install face plate to cover box opening around pipe penetrations. Apply sealant, Type B, around pipes at face plate.

K. Primary Drains:

1. After membrane installation, prime bottom of lead flashing sheet and set in uniform bed of plastic roof cement at specified locations.
2. Extend lead flashing into drain bowl or pipe a minimum of 50mm (2-inches) and over top of piping/bowl connection, if possible. Apply a continuous bead of sealant, Type A, at intersection of pipe and drain bowl.
3. If drain bowl and pipe connection is contaminated with bituminous material, strip-in area with three-coursing of plastic roof cement and fabric.
4. Prime top surface of lead flashing sheet to receive strip-in membrane.

L. Expansion Joint:

1. Construct new wood curbs using materials as specified in Section 02072 - Minor Demolition and Renovation Work.
2. Install new underlayment, form envelope, and secure underlayment to curb. Fill envelope with new compressible insulation.
3. Securely fasten new expansion joint cover to curb with new grommetted fasteners spaced 150mm (6-inches) on-center.

M. Curb Cap Flashing:

1. Install new wood nailers and/or plywood to provide substrate to have a resulting positive slope (minimum 1/4-inch per foot) toward roof.
2. Install and adhere underlayment/modified bitumen flashing over the existing curb extending a minimum 100 mm below top of curb and overlapping base flashing.
3. Install metal cap flashing over curb. Install appropriate fasteners through the fascia spaced 600 mm on-center in enlarged holes.
4. Reinstall equipment on top of cap flashing on top of vibration isolator pads.

3.03 CLEANING:

- A. Remove flux and residual acid immediately by neutralizing with baking soda and washing with clean water. Leave work clean and free of stains, scrap, and debris.
- B. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration/damage of finishes. Paint (color to match) areas of prefinished metal where finish is damaged. Replace sheet metal items when damaged finish can not be repaired to an acceptable condition.
- C. Prime soldered area of phosphatized metal after cleaning to prevent rusting.
- D. Paint with aluminized paint, metal flashings that have been soiled with bitumen. Use medium nap roller to apply paint to surfaces to achieve monolithic finished color.

END OF SECTION

SECTION 07920 - SEALANTS AND CAULKING

PART ONE - GENERAL

1.01 SECTION INCLUDES:

A. Sealant application to counterflashing, reglets, roofing related sheet metal, and additional sealant application as required to provide complete watertight roofing system.

1.02 RELATED SECTIONS:

A. 02072 - Minor Demolition and Renovation Work.

B. 07620 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM).

B. Federal Specifications (FS).

1.04 SUBMITTALS:

A. Product Data: Submit manufacturer's product data, joint preparation and installation instructions, and color charts for each product required.

B. Submit manufacturer's certification that products meet specified requirements and are appropriate for project applications.

C. Samples for Initial Selection Purposes: Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available for each product exposed to view.

1.05 QUALITY ASSURANCE:

A. Product Labels: Include manufacturer's name, type of sealant, and color on labels of containers.

B. Single Source Responsibility for Joint Sealer Materials:

1. Obtain joint sealer materials from single manufacturer for each different product required.

2. Provide primers, joint sealers, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience as supplied and warranted by one manufacturer.

3. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

C. Installer Qualifications: Installer having not less than five years successful experience in comparable projects and employing personnel skilled in operations required for project.

D. Field Sample: Upon directions of COR, prepare 300 mm samples in presence of COR demonstrating removal and cleaning process and application of sealant.

E. Use test methods standard with manufacturer to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealers to joint substrates under environmental conditions that will exist during actual installation.

F. Installer to perform field adhesion in peel testing using hand pull method. Perform a minimum of one test on every type of substrate and joint condition.

1. Test Method: Test joint sealers by hand pull method described below:

a. Install joint sealants in 1 m joint lengths using same materials and methods for joint preparation and joint sealant installation required for complete work. Allow sealants to cure fully before testing.

b. Make knife cuts as follows: A horizontal cut from one side of joint to the other followed by two vertical cuts approximately 50 mm long at side of joint and meeting horizontal cut at top of 50 mm cuts. Place a mark 25 mm from top of 50 mm piece.

c. Use fingers to grasp 50 mm piece of sealant just above 25 mm mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for ten seconds.

2. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.

3. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of non-compliance with requirements, will be considered satisfactory. Do not use sealants which fail to adhere to joint substrate during testing.

4. Repair test cut areas immediately after completion of testing work.

5. Notify in advance and conduct adhesion testing in presence of Consultant.

G. COR reserves the right to perform testing of the installed work in accordance with AMA 501.2-83, "Field Check of Metal Curtain Walls for Water Leakage". Contractor shall repair all installed work found to be deficient and pay for repairs and additional testing as necessary until satisfactory test results are achieved.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials in original containers with seals unbroken and labels intact.

B. Store materials in a single lockable area of project site.

C. Protect materials from extreme temperatures and exposure. Store in accordance with manufacturer's recommendations.

1.07 PROJECT CONDITIONS:

A. Environment: Comply with sealant manufacturer's recommended minimum and maximum installation temperatures and other weather protection.

1.08 SEQUENCING AND SCHEDULING:

A. Do not remove more sealant than can be replaced in same day.

1.09 WARRANTY:

A. Manufacturer's Warranty: Provide manufacturer's standard warranty for type of sealant specified.

B. Contractor's Warranty: Provide written warranty against leakage and defects in workmanship for a **period of ten years from date of final acceptance by COR.**

PART TWO - PRODUCTS

2.01 SEALANT:

A. Sealant:

1. Type A: One component polyurethane sealant such as "Dynatrol I" by Pecora Corp. or "NP1" by Sonneborn.
2. Type B: Medium modulus, neutral curing silicone sealant such as "895 Silicone Building Sealant" by Pecora Corp. or "795 Building Sealant" by Dow Corning.
3. Type C: Self-adhering elastomeric butyl tape, 3 mm by 9 mm, such as "Extru-Seal" by Pecora Corp.
4. Type D: Non-slump moisture curing structural sealant, gray in color, such as "M-1 Structural Sealant" by ChemLink, Inc.

2.02 RELATED MATERIALS:

A. Cleaner: Noncorrosive, nonstaining type, compatible with joint forming materials as recommended by sealant manufacturer.

B. Joint Backing:

1. Closed cell non-gassing polyethylene foam rod, over-sized 30 to 50 percent for joint size, compatible with sealant, sized and shaped to provide proper compression upon insertion in accordance with manufacturer's recommendations.

2. Acceptable Products:

- a. "Sonolastic Soft Backer-Rod" by Sonneborn.
- b. "SofRod" by Namaco.
- c. Or approved equal products.

C. Bond Preventive Materials: Pressure sensitive adhesive polyethylene strip recommended by sealant manufacturer to suit application.

D. Primer: Nonstaining type as recommended by sealant manufacturer to suit application.

E. Masking Tape: Nonstaining, nonabsorbent type compatible with sealant and surfaces adjacent to joints.

2.03 MIXING:

A. Mix multi-component products as directed by manufacturer.

PART THREE - EXECUTION

3.01 PREPARATION:

A. Removing Existing Sealants and Mortar:

1. Cut out and remove existing sealants, backer rods, bond breaker tapes, mortar and other loose materials to depth as required by sealant manufacturer or to 13 mm minimum.
2. Remove foreign matter from joint substrates which could interfere with adhesion of joint sealant. Remove dust, oil, grease, waterproofing, water repellent, surface dirt, and paints, except for permanent protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
3. Remove debris from jobsite.

B. Cleaning:

1. Clean joints receiving sealant and adjacent surfaces in manner not to damage existing materials. Perform cleaning of joints the same day sealant is to be installed in cleaned joint.
2. Remove dust and debris by blowing clean with powered force air equipment.
3. Wipe nonporous surfaces clean with toluene or xylene and clean cloths.

C. Priming:

1. Prime joint substrates where indicated or where recommended by sealant manufacturer based upon preconstruction sealant substrate tests or prior experience.
2. Apply primer to comply with joint sealer manufacturer's recommendations. Apply primer to surfaces the same day sealant is to be installed onto primed surfaces.
3. Confine primers to area of joint sealer bond. Do not allow spillage or migration onto adjoining surfaces.

D. Masking: Mask areas adjacent to joints to prevent sealant contact with surfaces which would be permanently stained or damaged by sealant or by cleaning methods required to remove excess sealant.

3.02 APPLICATION:

A. Joint Backing:

1. To achieve required joint depths, restrict depth of joints by use of joint backer rod.
2. Size backer rod to allow for 30 percent minimum compression of the backer rod when installed.
3. Where joint backing material is not feasible due to insufficient clearance or depth, install bond preventive material in joint.
4. Three-sided adhesion of sealant is not permitted.

B. Sealant:

1. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates.

2. Apply sealant in uniform continuous bead without gaps or air pockets, following manufacturer's instructions for each specific type of sealant.
3. Provide uniform cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

C. Tooling:

1. Tool joints to required configuration in accordance with manufacturer's recommendations.

2. Sealant Tape:

- a. Provide continuous uniform bed of sealant tape on bearing surfaces. Butt adjacent sections end-to-end.
- b. Prior to mating surfaces, remove backing paper from the installed tape.
- c. Firmly press or clamp assembly upon removal of backing paper.

3. Tooling Non-sag Sealants:

- a. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration required.
- b. Eliminate air pockets and ensure contact and adhesion of sealant with sides of joint.
- c. Remove excess sealant from surfaces adjacent to joint.
- d. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by manufacturer.

D. Remove masking immediately after tooling without disturbing joint sealant.

3.03 ADJUSTING:

A. If damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

3.04 CLEANING:

- A. Remove excess sealant from adjacent surfaces immediately after contact with xylene or toluene.
- B. Remove debris and containers from jobsite.

3.05 PROTECTION:

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion.

3.06 SCHEDULE:

A. Sealant A:

1. Sealant work in conjunction with roofing.
2. Saw-cut reglets.
3. Crack preparation for elastomeric coating.

B. Sealant B:

1. Metal-to-metal joints (metal edge cover plates, counterflashing lap joints, etc.).
2. Heat sensitive applications.
3. Bonnets/Umbrella caulk trough.

C. Sealant C:

1. Penetration umbrellas; between umbrella and penetrating element.
2. Surface mounted counterflashings; between counterflashing and substrate.

D. Sealant D:

1. Lightning cable holders/clips to concrete paver.

END OF SECTION

SECTION 09830 - ELASTOMERIC COATING

PART ONE – GENERAL

1.01 SECTION INCLUDES:

A. Application of elastomeric coating system to exposed concrete at parapet walls, equipment curbs, screen walls, sheet metal curb covers, and penthouse/building risewalls, including crack repair, surface preparation, priming, and top coats.

1.02 RELATED SECTIONS:

- A. 02072 - Minor Demolition and Renovation Work.
- B. 07620 - Sheet Metal Flashing and Trim.
- C. 07920 - Sealants and Caulking.

1.03 SUBMITTALS:

A. Provide submittals in accordance with Section 01300 - Submittals.

B. Product Data: Submit manufacturer's technical information including basic material analysis, installation instructions, Material Safety Data Sheets (MSDS), and color chart for each material specified. List each material and cross-reference to the specific coating and finish system and application. Identify by manufacturer's catalog number and general classification.

C. Samples: Use representative colors when preparing samples for review. Submit 300 mm by 300 mm samples on hardboard for COR review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

D. On wall surfaces, duplicate coating finishes of prepared samples. Provide 1 m by 1 m full-coat finish sample of surface as directed until required sheen, color, and texture is obtained. Sample to be representative of surface preparation, primer application, and elastomeric coating application to be used in the completed Work. Simulate finished lighting conditions for review of in-place Work.

E. Final acceptance of colors will be from samples applied on job. Accepted sample may not remain as part of Work.

1.04 QUALITY ASSURANCE:

A. Single Source Responsibility: Provide primers and other undercoat material produced by same manufacturer as finish coats. Use only thinners approved by coating manufacturer, and use only within recommended limits.

B. Installer: Firm having not less than five years successful experience in comparable projects and employing personnel skilled in restoration processes and operations specified.

C. Perform adhesion tests on installed cured sample or samples prior to beginning elastomeric coating installation. Perform test in accordance with ASTM D 3359, Test Method A.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Deliver and store materials in accordance with internal standard.

B. Deliver materials in original, new, unopened packages and containers bearing manufacturer's name and label, and following information:

1. Manufacturer's name.
2. Name or title of material and type of coating.
3. Federal Specification number, if applicable.
4. Manufacturer's stock number, date of manufacture, and batch number.
5. Contents by volume, for major pigment and vehicle constituents.
6. Thinning and mixing instructions.
7. Application instructions.
8. Color name and number.

C. Store materials not in actual use in tightly covered containers outside of building. Maintain containers used in storage of coatings in a clean and dry condition, free of foreign materials and residue. Store rags, solvent, and coatings in closed metal container, located in designated areas.

D. Keep storage area neat and orderly. Remove rags and waste daily.

E. Protect from freezing where necessary.

F. Take precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing, and application of special coatings. Take all precautions required to prevent fires.

1.06 PROJECT CONDITIONS:

A. Do not apply coatings when the temperature of surfaces to be coated and the surrounding air temperatures are below 7 degrees Celsius, unless otherwise permitted by coating manufacturer's printed instructions.

B. Do not apply coatings in snow, rain, fog, or mist or when relative humidity exceeds 85 percent or to damp or wet surfaces unless otherwise permitted by coating manufacturer's printed instructions.

C. Coating work may be continued during inclement weather only if areas and surfaces to be coated are enclosed and heated within temperature limits specified by coating manufacturer during application and curing periods.

D. Protect persons, motor vehicles, surfaces adjacent to areas being restored, building site, and surrounding buildings from injury, contamination, soiling, and damage resulting from the coating work.

E. Furnish and erect temporary barricades and protection at pedestrian walkways and at points of entrance and exit.

1.07 SEQUENCING AND SCHEDULING:

A. Coordinate coating application with roofing and masonry work to prevent damage, staining, or discoloration of new coating and other building systems. Repair damage at no additional cost to Embassy.

1.08 WARRANTY:

A. Manufacturer's Guarantee: Provide written ten year manufacturer's labor and material guarantee against leakage and defects in workmanship and material from date of Substantial Completion.

B. Contractor's Warranty: Provide Embassy a written ten year Contractor's labor and material warranty against leakage and defects in workmanship and material from date of Substantial Completion.

1.09 ADDITIONAL STOCK:

A. Provide one gallon container each of primer and finish coat to Embassy.

B. Label each container with material name and type, color, texture, and application location, in addition to manufacturer's label.

PART TWO - PRODUCTS

2.01 ELASTOMERIC COATING:

A. Elastomeric Coating: Waterproof elastomeric water-based (V.O.C. compliant) coating formulated from acrylic polymers and designed to retain its elasticity and flexibility.

B. Acceptable Products for Concrete Substrates:

1. "Thorolastic", Thoro System Products.
2. "Flexcoat", Sonneborn.
3. "Sikagard ElastoColor", Sika Corporation.
4. "Sto Flexible Coating", Sto Concrete Restoration Division.
5. Or approved equal.

C. Acceptable Elastomeric Coating Materials for Metal/Rubber Substrates:

1. Rust Inhibitor: Water-based rust inhibitor to be applied over rusted areas after surface preparation such as "MP-300" by GAF/TopCoat.

2. Primer: Water-based anti-corrosive primer to be applied over prepared surfaces to achieve proper bonding surface for base coat.
3. Elastomeric Coating: Single-component acrylic elastomer, white in color, such as "TopCoat Elastomeric Roofing Membrane" by GAF/TopCoat.
4. Flashing Compound: Trowel grade acrylic elastomer such as "Flashing Grade" by GAF/TopCoat or "M-500 Flashing Grade" by MEGA Industries.
5. Reinforcing Fabric: Flexible polyester mat of weight and type or composition recommended by liquid membrane manufacturer for embedment in liquid membrane material such as "Topester" by GAF/TopCoat or "M600 Polyester Fabric" by MEGA Industries.
6. Gutter Coating: Single-component, non-acrylic elastomer coating resistant to ponded water such as "Flexseal" by GAF/TopCoat or "S-120 HydroBloc" by MEGA Industries.

2.02 RELATED MATERIALS:

- A. Polyurethane Sealant: Refer to Section 07920 - Sealants and Caulking, Sealant Type A. Cured sealant shall be compatible with elastomeric coating.
- B. Patching Compound: As recommended by coating manufacturer.
- C. Primer: As recommended by coating manufacturer.

2.03 MIXING:

- A. Carefully mix and prepare materials in accordance with manufacturer's directions.
- B. Maintain containers used in mixing and application of coating in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce mixture of uniform density. Stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
- D. Tinting:
 1. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of same material are to be applied.
 2. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
 3. Finish Color: To be selected by COR.

PART THREE - EXECUTION

3.01 PROTECTION:

- A. Protect work of other trades, whether to be coated or not, against damage.
- B. Protect or remove and replace existing decorative signage on exterior plaster surface.

3.02 PREPARATION:

A. Clean surfaces, repair delaminated or unsound plaster surfaces, and repair cracks with sealant and patching compound in accordance with coating manufacturer's written recommendations.

B. Remove all loose particles, loose or delaminated paint, oil, grease, laitance, efflorescence, mold, mildew, and other foreign material. Substrate shall be dry.

C. Primer application is required if substrate is chalky after cleaning and proper surface preparation.

D. Crack Preparation:

1. Cracks Less Than 2 mm: Patch in accordance with elastomeric coating manufacturer's written instructions.

2. Cracks in Excess of 2 mm:

a. Grind or rout cracks to 6 mm by 6 mm and remove dust.

b. Fill cracks until flush with surface with patching compound or Sealant Type B in accordance with manufacturer's recommendations.

3. Apply light coat of sand to patching compound or sealant before repair material cures. Sand to match size, texture, and appearance of adjacent substrate.

4. Perform adhesion testing of sealant or patching compound used to repair exterior plaster.

5. Prepare substrate area to be coated in accordance with coating manufacturer's recommendations.

3.03 APPLICATION:

A. Elastomeric Coating Application to Masonry/Concrete Surfaces:

1. Prime Coats:

a. Before application of finish coats, apply prime coat in a thin spray or roll coat to surface to be coated

b. Recoat primed and sealed substrates where there is evidence of suction spots or unsealed areas in first coat to assure a finish coat with no burn-through or other defects due to insufficient sealing.

2. Apply coating by brush, roller, airless spray, or other application method in accordance with coating manufacturer's directions. Use brushes best suited for type of material being applied. Use rollers as recommended by manufacturer for material and texture required.

3. Apply coating system with a minimum of two coats or more if required to prevent bleed through of substrate color. Apply additional coats when topcoats or other conditions show through final coat until cured film is of uniform finish, color, and appearance. Apply finish in pinhole free, continuous membrane.

4. Minimum Coating Thickness:

a. Number of coats and finished coating film thickness required is same regardless of application method.

b. Do not apply succeeding coats until previous coat has cured as recommended by coating manufacturer.

- c. Apply each material no thinner than manufacturer's recommended spreading rate.
- d. Provide total dry film thickness of entire coating system as required by manufacturer unless otherwise indicated.

5. Brush Applications:

- a. Brush-out and work brush coats onto surfaces in an even film.
- b. Eliminate cloudiness, spotting, pin holes, laps, brush marks, runs, sags, ropiness, or other surface imperfections.
- c. Neatly draw glass lines and color breaks.

6. Roller Applications: On porous substrates, backroll to eliminate pinholing. Do not dry roll.

B. Elastomeric Coating Application to Gutter Liner:

- 1. Remove existing materials, debris, dirt, and other deleterious materials from within the gutter.
- 2. Apply elastomeric gutter coating over existing rubber liner in gutter.
Embed polyester fabric, 150 mm wide, into initial coating at lap seams of liner.
- 3. Apply a second application of gutter coating over liner.

C. Elastomeric Coating Application to Metal Substrate:

- 1. Apply a continuous troweling of flashing compound along the seams of the metal caps/cover and over fasteners.
- 2. Apply an initial application of coating, at rate recommended by manufacturer, over the metal caps.
- 3. Embed reinforcing fabric into coating, minimum 150 mm wide, centered over end laps.
- 4. Apply a second application of coating over subject area in manner to provide uniform thickness as required by manufacturer.

3.04 FIELD QUALITY CONTROL:

A. COR reserves right to invoke following material testing procedures at any time and any number of times during period of field application:

- 1. COR will engage services of independent testing laboratory to sample materials being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.
- 2. Testing laboratory will perform appropriate tests for any of following characteristics: adhesion, abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance, and quantitative materials and analysis.
- 3. If test results show materials being used do not comply with specified requirements, Contractor may be directed to stop work and remove non-complying materials, pay for testing, recoat surfaces coated with rejected materials, and remove rejected materials from previously coated surfaces if, upon recoating with specified materials, the two coatings are incompatible.

3.05 ADJUSTING:

A. Correct damage by cleaning, repairing or replacing, and recoating as directed by Consultant. Leave work in undamaged condition. Replace any material or surfaces damaged, or restore if possible, to original condition.

3.06 CLEANING:

A. During progress of work, remove discarded materials, rubbish, cans, and rags resulting from work from project site daily.

B. Furnish and lay drop cloths in areas where coating and finishing is being done. Protect floors and other surfaces from dripping materials. Where it becomes necessary to remove temporary coverings protecting material in place in order to proceed with work, replace or provide other satisfactory means of protection.

C. Promptly clean off spots of coating, oil, and stains from floors, walls, roof areas, sidewalks, hardware, and other surfaces. Do not allow them to accumulate, dry, or harden. Upon completion of the work, check finished surfaces, clean off previously undetected spots and stains used in coating and finishing from the building, and leave entire building in clean condition insofar as coating and finishing work is concerned.

D. Upon completion of work, clean coating-spattered surfaces. Remove spattered materials by proper methods of washing and scraping, using care not to damage finished surfaces.

E. Maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

3.07 PROTECTION:

A. Protect work of other trades against injury or damage during and because of coating and finishing operations.

B. Provide "Wet Paint" signs and barricades as required to protect finishes. After coating application, remove temporary protective wrappings provided by others for protection of their work during coatings operation.

END OF SECTION

ATTACHMENT # 8

APP Membranes Specification(Attached in Zip folder)

J. QUOTATION INFORMATION

A. QUALIFICATIONS OF OFFERORS

Offerors/quoters must be technically qualified and financially responsible to perform the work described in this solicitation. At a minimum, each Offeror/Quoter must meet the following requirements:

- (1) Be able to understand written and spoken English;
- (2) Have an established business with a permanent address and telephone listing;
- (3) Be able to demonstrate prior construction experience with suitable references;
- (4) Have the necessary personnel, equipment and financial resources available to perform the work;
- (5) Have all licenses and permits required by local law;
- (6) Meet all local insurance requirements;
- (7) Have the ability to obtain or to post adequate performance security, such as bonds, irrevocable letters of credit or guarantees issued by a reputable financial institution;
- (8) Have no adverse criminal record; and
- (9) Have no political or business affiliation which could be considered contrary to the interests of the United States.

B. SUBMISSION OF QUOTATIONS

This solicitation is for the performance of the construction services described in SCOPE OF WORK, and the Attachments which are a part of this request for quotation.

Each quotation must consist of the following:

<u>Volume</u>	<u>Title</u>	<u>No. of Copies*</u>
I	Standard Form 1442 including a completed Attachment 2, "BREAKDOWN OF PROPOSAL PRICE BY DIVISIONS OF SPECIFICATIONS.	<u>2</u>
II	Performance schedule in the form of a "bar chart" and Business Management/Technical Proposal.	<u>3</u>
III	Bill of Materials, Catalog cuts, schedule & costs.	<u>3</u>

Submit the complete quotation to the address indicated on Standard Form 1442, **via courier services.**

**Contracting Officer
General Services Office (GSO Procurement)
American Embassy
Diplomatic Enclave, Ramna-5, Islamabad**

Ref # SPK-330-11-Q-5592

The Offeror/Quoter shall identify and explain/justify any deviations, exceptions, or conditional assumptions taken with respect to any of the instructions or requirements of this request for quotation in the appropriate volume of the offer.

Volume II: Performance schedule and Business Management/Technical Proposal.

(a) Present the performance schedule in the form of a "bar chart" indicating when the various portions of the work will be commenced and completed within the required schedule. This bar chart shall be in sufficient detail to clearly show each segregable portion of work and its planned commencement and completion date.

(b) The Business Management/Technical Proposal shall be in two parts, including the following information:

Proposed Work Information - Provide the following:

(1) A list of the names, addresses and telephone numbers of the owners, partners, and principal officers of the Offeror;

(2) The name and address of the Offeror's field superintendent for this project;

(3) A list of the names, addresses, and telephone numbers of subcontractors and principal materials suppliers to be used on the project, indicating what portions of the work will be performed by them; and,

Experience and Past Performance - List all contracts and subcontracts your company has held over the past three years for the same or similar work. Provide the following information for each contract and subcontract:

(1) Customer's name, address, and telephone numbers of customer's lead contract and technical personnel;

(2) Contract number and type;

(3) Date of the contract award place(s) of performance, and completion dates; Contract dollar value;

(4) Brief description of the work, including responsibilities; and

(5) Any litigation currently in process or occurring within last 5 years.

C. 52.236-27 SITE VISIT (FEB 1995)

- (a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.
- (b) A site visit has been scheduled for **September 12, 2011 at 1000hrs.**
- (c) Participants will meet at Main Reception, U.S. Embassy, Diplomatic Enclave, Ramna-5, Islamabad.
- (d) Maximum two persons from one firm can participate in site visit. Interested offerors must provide with full name of participant/s (as written on NIC), NIC number and particulars of vehicle to be used like make, model, color and registration number before 12:00 noon on September 9, 2011. This information can be provided on following e-mail addresses:
ZainuddinA@state.gov and **latifm@state.gov**

D. MAGNITUDE OF CONSTRUCTION PROJECT

It is anticipated that the range in price of this contract will be: **Reserved**

E. LATE QUOTATIONS. Late quotations shall be handled in accordance with FAR

F. 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE
(FEB 1998)

This contract incorporates the following provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at:

<http://acquisition.gov/far/index.html/> or, <http://farsite.hill.af.mil/search.htm>

These addresses are subject to change. If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use of an Internet "search engine" (such as, Yahoo, Infoseek, Alta Vista, etc.) is suggested to obtain the latest location of the most current FAR.
<http://www.statebuy.state.gov>

FEDERAL ACQUISITION REGULATION (48 CFR CH. 1)

52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (JAN 2004), which is incorporated by reference into this solicitation.

K. EVALUATION CRITERIA

Award will be made to the lowest priced, acceptable, responsible quoter. The Government reserves the right to reject quotations that are unreasonably low or high in price.

The Government will determine acceptability by assessing the offeror's compliance with the terms of the RFQ. The Government will determine responsibility by analyzing whether the apparent successful quoter complies with the requirements of FAR 9.1, including:

- ability to comply with the required performance period, taking into consideration all existing commercial and governmental business commitments;
- satisfactory record of integrity and business ethics;
- necessary organization, experience, and skills or the ability to obtain them;
- necessary equipment and facilities or the ability to obtain them; and
- otherwise qualified and eligible to receive an award under applicable laws and regulations.

SECTION L - REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS OR QUOTERS

L.1 52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

(a) Definitions.

"Common parent", as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

"Taxpayer Identification Number (TIN)", as used in this provision, means the number required by the IRS to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision in order to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325 (d), reporting requirements of 26 USC 6041, 6041A, and 6050M and implementing regulations issued by the Internal Revenue Service (IRS). If the resulting contract is subject to the reporting requirements described in FAR 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 USC 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) Taxpayer Identification Number (TIN).

TIN: _____

☐ TIN has been applied for.

☐ TIN is not required because:

☐ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the U.S. and does not have an office or place of business or a fiscal paying agent in the U.S.;

☐ Offeror is an agency or instrumentality of a foreign government;

☐ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of Organization.

☐ Sole Proprietorship;

☐ Partnership;

☐ Corporate Entity (not tax exempt);

- ☐ Corporate Entity (tax exempt);
- ☐ Government entity (Federal, State, or local);
- ☐ Foreign government;
- ☐ International organization per 26 CFR 1.6049-4;
- ☐ Other _____

(f) Common Parent.

- ☐ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this clause.
- ☐ Name and TIN of common parent;

Name _____
 TIN _____

(End of provision)

L.2 52.204-6 CONTRACTOR IDENTIFICATION NUMBER -DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (OCT 2003)

(a) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation “DUNS” or “DUNS+4” followed by the DUNS number or DUNS+4 that identifies the offeror’s name and address exactly as stated in the offer. The DUNS number is a nine-digit number assigned by Dun and Bradstreet Information Services. The DUNS+4 is the DUNS number plus a 4-character suffix that may be assigned at the discretion of the offeror to establish additional CCR records for identifying alternative Electronic Funds Transfer (EFT) accounts (see Subpart 32.11) for the same parent company.

If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. An offeror may obtain a DUNS number-

- If located within the United States, by calling Dun and Bradstreet at 1-866-705-5711 or via the Internet at <http://www.dnb.com>; or
- If located outside the United States, by contacting the local Dun and Bradstreet office.

The offeror should be prepared to provide the following information:

- Company legal business name.
- Tradestyle, doing business, or other name by which your entity is commonly recognized.
- Company physical street address, city, state and Zip Code.
- Company mailing address, city, state and Zip Code (if separate from physical)
- Company telephone number
- Date the company was started.

- Number of employees at your location.
- Chief executive officer/key manager.
- Line of business (industry)
- Company Headquarters name and address (reporting relationship within your entity).

L.3 52.204-8 Annual Representations and Certifications. (FEB 2009)

(1) The North American Industry Classification System (NAICS) code for this acquisition is 236220.

(2) The small business size standard is USD 33.5 million.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) (1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (d) of this provision applies.

(2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. **The offeror shall indicate which option applies by checking one of the following boxes:**

[] (i) Paragraph (d) applies.

[**X**] (ii) Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c) (1) The following representations or certifications in ORCA are applicable to this solicitation as indicated:

(i) 52.203-2, Certificate of Independent Price Determination Reserved

(ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed \$100,000.

(iii) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the clause at 52.204-7, Central Contractor Registration

(iv) 52.204-5, Women-Owned Business (Other Than Small Business). Reserved

(v) 52.209-5, Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

(vi) 52.214-14, Place of Performance—Sealed Bidding Reserved.

(vii) 52.215-6, Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

(viii) – (xii). Reserved

- (xiii) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA–designated items; or include the clause at 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts.
- (xiv) 52.223-4, Recovered Material Certification This provision applies to solicitations that are for, or specify the use of, EPA–designated items.
- (xv) 52.225-2, Buy American Act Certificate. This provision applies to solicitations containing the clause at 52.225-1.
- (xvi) 52.225-4, Buy American Act—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternate I, and Alternate II) This provision applies to solicitations containing the clause at 52.225-3.
 - (A) If the acquisition value is less than \$25,000, the basic provision applies.
 - (B) If the acquisition value is \$25,000 or more but is less than \$50,000, the provision with its Alternate I applies.
 - (C) If the acquisition value is \$50,000 or more but is less than \$67,826, the provision with its Alternate II applies.
- (xvii) 52.225-6, Trade Agreements Certificate. This provision applies to solicitations containing the clause at 52.225-5.
- (xviii) 52.225-20, Prohibition on Conducting Restricted Business Operations in Sudan—Certification.
- (xix) Reserved

(d) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at <http://orca.bpn.gov>. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*Offeror to insert changes, identifying change by clause number, title, date*]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer. Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of Clause)

L.4. 52.225-18 PLACE OF MANUFACTURE (SEPT 2006)

(a) *Definitions.* As used in this clause—

“Manufactured end product” means any end product in Federal Supply Classes (FSC) 1000-9999, except—

- (1) FSC 5510, Lumber and Related Basic Wood Materials;
- (2) Federal Supply Group (FSG) 87, Agricultural Supplies;
- (3) FSG 88, Live Animals;
- (4) FSG 89, Food and Related Consumables;
- (5) FSC 9410, Crude Grades of Plant Materials;
- (6) FSC 9430, Miscellaneous Crude Animal Products, Inedible;
- (7) FSC 9440, Miscellaneous Crude Agricultural and Forestry Products;
- (8) FSC 9610, Ores;
- (9) FSC 9620, Minerals, Natural and Synthetic; and
- (10) FSC 9630, Additive Metal Materials.

“Place of manufacture” means the place where an end product is assembled out of components, or otherwise made or processed from raw materials into the finished product that is to be provided to the Government. If a product is disassembled and reassembled, the place of reassembly is not the place of manufacture.

(b) For statistical purposes only, the offeror shall indicate whether the place of manufacture of the end products it expects to provide in response to this solicitation is predominantly—

- (1) ☐ In the United States (Check this box if the total anticipated price of offered end products manufactured in the United States exceeds the total anticipated price of offered end products manufactured outside the United States); or
- (2) ☐ Outside the United States.

L.5 AUTHORIZED CONTRACT ADMINISTRATOR

If the offeror does not fill-in the blanks below, the official who signed the offer will be deemed to be the offeror's representative for Contract Administration, which includes all matters pertaining to payments.

Name: _____

Address: _____

Telephone Number: _____

L.6 652.228-70 DEFENSE BASE ACT – COVERED CONTRACTOR EMPLOYEES (JUN 2006)

(a) Bidders/offerors shall indicate below whether or not any of the following categories of employees will be employed on the resultant contract, and, if so, the number of such employees:

Category	Yes/No	Number
(1) <i>United States citizens or residents</i>		
(2) <i>Individuals hired in the United States, regardless of citizenship</i>		
(3) <i>Local nationals or third country nationals where contract performance takes place in a country where there are no local workers' compensation laws</i>		<i>Local nationals:</i> _____ <i>Third Country Nationals:</i> _____
(4) <i>Local nationals or third country nationals where contract performance takes place in a country where there are local workers' compensation laws</i>		<i>Local nationals:</i> _____ <i>Third Country Nationals:</i> _____

(c) The contracting officer has determined that for performance in the country of Pakistan.

- ✓ Workers' compensation laws exist that will cover local nationals and third country nationals.

(c) If the bidder/offeror has indicated "yes" in block (a)(4) of this provision, the bidder/offeror shall not purchase Defense Base Act insurance for those employees. However, the bidder/offeror shall assume liability toward the employees and their beneficiaries for war-hazard injury, death, capture, or detention, in accordance with the clause at FAR 52.228-4.

(d) If the bidder/offeror has indicated "yes" in blocks (a)(1), (2), or (3) of this provision, the bidder/offeror shall compute Defense Base Act insurance costs covering those employees pursuant to the terms of the contract between the Department of State and the Department's Defense Base Act insurance carrier at the rates specified in DOSAR 652.228-74, Defense Base Act Insurance Rates – Limitation. If DOSAR provision 652.228-74 is not included in this solicitation, the bidder/offeror shall notify the contracting officer before the closing date so that the solicitation can be amended accordingly.